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Series III

Selected Abstracts

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ABBREVIATIONS USED IN "SELECTED ABSTRACTS" - Series III, No. 2

Biull. eksper. biol. i medits.	Biulleten' eksperimental'noi biologii i meditsiny
Kazan. med. zh.	Kazan'skii meditsinskii zhurnal
Med. parazitol.	Meditsinskaia parazitologiya i parazitarnye bolezni
Zh. med. parazitol.	Zhurnal meditsinskii parazitologiya
Zh. mikrobiol.	Zhurnal mikrobiologii, epidemiologii i immunobiologii
Zh. nevropatol.	Zhurnal nevropatologii i psikhiiatrii im S. S. Korsakova
Zool. zh.	Zoologicheskii zhurnal

Institutions

AMS	Academy of Medical Sciences
AS	Academy of Sciences
ASSR	Autonomous Soviet Socialist Republic
IEM	Institute of Epidemiology and Microbiology
IEMH	Institute of Epidemiology, Microbiology and Hygiene
MI	Medical Institute
MH	Ministry (Public) Health
RSFSR	Russian Soviet Federated Socialist Republic
SR	Scientific Research
SSR	Soviet Socialist Republic
USSR	Union of Soviet Socialist Republics

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94. Mukhopad, V. A., Contribution to the problem of Q-fever in some industrial plants of the Ukrainian SSR.  
Gigiena i sanitariia (1964) 8: 28-32.  
(From the Kiev SR IEM.)

In the conclusions to this article it is stated that

- "1. Serological examinations to detect the presence of Q-fever among the workers of some establishments in the Khmel'nitsk Oblast engaged in processing local and imported animal produce, gave in some instances positive results. The problem of the presence of Q-fever in that oblast needs further study.
2. Corresponding examinations of the workers of the Kiev meat-packing plant, where the cattle from 5 Ukrainian oblasts is slaughtered, gave negative results.
3. Q-fever patients and convalescents were detected in a Chernigov factory engaged in the primary processing of wool. These findings make it indispensable effectively to prevent Q-fever manifestations in the factory."

95. Gaidamovich, S. IA., Arthropod-borne viruses (Arboviruses).  
Voprosy virusologii (1964) 4:387-397.  
(From the D. I. Ivanovskii Institute of Virusology, AMS, USSR.)

This survey of the literature, in which 34 papers by Soviet workers and 78 articles by western authors are dealt with, can be quoted by title only.

96. Brodie, J. A. et al., Study of the length of persistence of the specific antibodies and the virus of tick-borne encephalitis adsorbed to filter paper disks.  
Vopr. virusol. (1964) 4:398-404.  
(From the National Institutes of Health, U. S. A. Public Health Service and the Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR, Moscow.)

Concluding their article the authors stated that

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"Our investigations showed that filter paper disks with dried blood can be recommended for field tests in the case of tick-borne encephalitis - first of all for the isolation of the virus and antibody studies with the aid of the hemagglutination inhibition test. Promising results were obtained regarding the possibility of using the disks for a detection of virus-neutralizing antibodies, but the limited number of tests made does not permit to come to final conclusions in this respect."

As the authors added, it had not been possible thus far to use the material from the filter disks for complement fixation tests.

97. Loginova-Parina, N. V. and Levkovich, E. N., Comparative characterization of the plaque formation by the viruses of the tick-borne encephalitis group.  
Vopr. virusol. (1964) 4:404-408.  
(From the Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.)

The contents of this illustrated article does not lend themselves to the purposes of a brief review.

98. Pshenichnov, R. A. and Batarova, N. A., Observations on the possible existence of phages to some rickettsiae.  
Vopr. virusol. (1964) 4:494-497.  
(From the Rickettsiosis Laboratory of the Perm SR Vaccine and Serum Institute.)

The observations recorded in this article must be studied in the original or in a translation.

99. Shiranovich, P. I. et al. (Rostov-on-Don): Fleas in the human habitations of the Pre-Caspian lowlands. Authors' Review. Med. parazitol. 33 (1964) 4:494-495.

Commenting upon their findings the authors of this note made the following interesting statement:

"The analysis of a large factual material collected during the last decades indicates

an almost complete absence of fleas in the human habitations. In our opinion this phenomenon is due to the first line to the large-scale use of the synthetic insecticides.... Statements have been made in the literature connecting the absence of fleas in the human habitations with unfavorable climatic conditions (Bykhaeva and co-workers, 1960), but they seem unfounded to us; moreover, such statements are harmful in so far as they keep us away from the necessity of systematic observations on the frequency of the fleas and the timely organization of a fight against them where ever necessary."

As the authors added, the success obtained in the anti-flea campaigns in the human habitations speaks against the assumption that the fleas become resistant to the insecticides. Since, however, statements to contrary have been published within recent years, this subject needs further large-scale studies.

100. Klein, E. G. and Braver, G. I., Observations on myocarditis after smallpox vaccination. Vrachebnoe delo (1964) 8:133-135. (From the Bureau of Legal Medicine of the Kiev Oblast.)

The authors describe an acutely fatal attack of myocarditis following smallpox vaccination in a six months old child.

101. Kiktenko, V. S. and Panin, A. F., Review of the book "Meditsinskaya mikrobiologiya" (Medical microbiology) by K. D. Piatkin, Kiev, Gosmedizdat USSR, 1962, 383 pp.

This on the whole rather favorable review can be quoted by title only.

102. Noteworthy articles quoted in two reference lists published in the Zh. med. parazitol. (1964) 4:499-508.

(a) 1963

- 1) Bel'man, Kh. L., Problems of localization in the clinique of tick-borne encephalitis. Zh. nevropatol. 63 (1963) 11:1670-1672.

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- 2) Davidenkov, E. F., The nosological position of the two-wave meningo-encephalitis among the other tick-borne encephalitides. Ibidem, 10:1453-1462.
- 3) Petrescu, Ar. and Iordanov, B., The second Rumanian-Bulgarian symposium on encephalitis. Ibidem, 2: 17-53.
- 4) Vaserin, IU. I., Observations on the agar precipitation reaction for the diagnosis of tick-borne encephalitis under the conditions of an ordinary bacteriological laboratory. Laboratornoe delo (1963) 7: 43-45.
- 5) Vereta, L. A. and Kapter, V. M., Tick-borne encephalitis in the Khabarovsk Krai. Sketches of the epidemiology and clinique. Khabarovsk, 1963. 194 pp.
- 6) Daiter, A. B., Experiences of the infection of some arthropods on Q-fever patients. Trudy Leningradsk. inst. epidemiol. i mikrobiol. 25 (1963): 92-100.
- 7) Leningradskii institut epidemiologii i mikrobiologii: Contributions to the problem of the role of the ticks of the super-family Ixodoidea in Q-fever rickettsiosis. Reports III-V. Ibidem, 101-153.
- 8) Kravchenko, A. T. et al., Production and purification of immune sera against tick-borne and Japanese encephalitis. Vopr. med. parazitologii 8 (1963): 106-113.
- 9) Rodin, I. M. et al., Experimental serotherapy of tick-borne encephalitis. Ibidem, 98-105.
- 10) Kraminskii, V. A. et al., Some results of the study of tick-borne encephalitis by anti-plague institutes. Dokl. Irkutsk. protivochumn. inst. 6 (1963): 145-151.
- 11) Nechinennyi, D. K. and Kartashev, M. V., Experiences of the use of aerosols in the fight against ixodes ticks on pastures. N. trudy Ukrainsk. n.-i. inst. eksper. veterinarii 29 (1963): 162-167.
- 12) Ovasapian, O. V. et al., Instances of the transportation of tularemia-infected pasture ticks on imported cattle into the Armenian SSR. Trudy Armiansk protivochumn. stantsii, Vypusk 2 (1963): 255-260.
- 13) Popov, , Materials to the study of the transmission of diseases by blood-sucking diptera and ticks in the Azerbaidzhan SSR. Uch. zapiski Azerbaidzh. med. inst. (1963) 2: 35-43.

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- 14) Rybalko, S. I. et al., Tick-borne encephalitis in eastern Kazakhstan. Trudy inst. zoolog. AN Kazakhsk. SSR, Alma-Ata 9 (1963): 234-237.
- 15) Shilova, S. A., Chabovskii, V. I. and Morozov, IU. V., Epizootiological importance of birds in the tick-borne encephalitis foci of the Central Ural. Ornitologiya (1963) 6:126-139.
- 16) Avetisian, G. A., Fleas of the gerbils in the Armenian SSR. Trudy Armiansk. protivochumn. stantsii (1963) 2:347-360.
- 17) Adamian, A. O. et al., Distribution of rodents and their fleas in the raions of the Zangezur, Armenian SSR. Ibidem, 335-345.
- 18) Goncharov, A. I., Zoologo-geographical characterization and epizootiological importance of the fleas of the genus Neopsylla Wagner 1903. Dokl. Irkutsk. protivochumn. inst. (1963) 6:111-112.
- 19) Zhovtyi, I. F., Some debatable problems of the ecology of the rodent fleas in relation to their epidemiological importance. Ibidem, 96-104.
- 20) Shiranovich, P. I., Modern pesticides and Pulex irritans. Experiences of campaigns; epidemiological consequences. Ibidem, 124-125.

(b) 1964

- 21) Naumov, N. P., The microstructure and the stability of the natural foci of diseases. Zool. zh. 43 (1964) 3:322-333.
- 22) Olsuf'ev, N. G., Observations on the paleogenesis of the natural tularemia foci. Ibidem, 355-359.
- 23) Pavlovskii, E. N., The occurrence of vector-borne diseases in natural foci in relation to the landscape epidemiology of the zoo-anthroposes. Moscow-Leningrad, 1964. 211 pp.
- 24) Petrishcheva, P. A., Influence of economical activities on the natural foci of some vector-borne diseases. Zool. zh. 43 (1964) 3:334-345.
- 25) Galant, I. B., Letter to the editor. Experiences of V. I. Il'enko and O. A. Pokrovskaya in the infection of monkeys with tick-borne encephalitis and the problem of the nosology of this disease. Zh. nevropatol. 64 (1964) 1:158-159.



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- 26) Gutsevich, A. V., Insects as vectors of viruses and parasites of man and animals. Zool. zh. 43 (1964) 3:429-442.
- 27) Filippov, IU. M., Influence of small doses of DDT on the biosynthesis of ascorbinic acid in the organs of rats. Vopr. pitaniia 23 (1964) 1: 70-73.

103. List of noteworthy articles published in the english edition of Acta Virologica 8 (1964) No. 4.

- 1) Libikova, H. et al., Isolation from Ixodes persulcatus ticks of cytopathic agents (Kemerovovirus) differing from the tick-borne encephalitis virus and some of their properties. Pp. 289-301.
- 2) Mayer, V. et al., Some biological and physico-chemical properties of the Kemerovo virus. Pp. 302-311.
- 3) Ghendon, YU. Z. and Chernos, V. I., Comparative study of genetic markers of some pox virus strains. Pp. 359-368.
- 4) Karpovich, L. G. and Izotov, V. K., Study of the hemagglutinating properties of viruses of the tick-borne encephalitis complex propagated in various cell cultures. Pp. 376-377.
- 5) Zhdanov, V. M. et al., Acceleration of reproduction of the Venezuelan equine encephalitis virus by actinomycin D. Pp. 378-379.
- 6) Rehacek, J. and Brezina, R., Propagation of Coxiella burneti in tick tissue cultures. Page 380.

104. Drozdovskaia, F. K., Phosphatase activity of plague and pseudotuberculosis bacilli. Author's Summary.  
Zh. mikrobiol (1964) 9: 149.  
(From the All-Soviet SR Anti-Plague Institute  
"Mikrob", Saratov.)

The author used for her investigations resting cells of the EV strain and an avirulent pseudotuberculosis strain, grown on agar (pH 7.2) for 2 days at 28°C.

The glycerophosphatase activity was determined in mixtures consisting of 1 ml of a 0.3% solution of sodium glycerophosphate, 2 ml of a buffer (0.2 M acetate buffer with

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a pH of 4.7 or 0.2 M borate buffer with a pH of 7.2 or 8.9) and 1 ml of a suspension of the culture under test containing 25 million organisms. After the mixtures had been kept at 37°C for 3 hours the ferment activity was determined in accordance with the increase of inorganic phosphorus in the medium.

The results obtained indicated that the adenosine triphosphatase and glycerophosphatase activity of the plague and pseudotuberculosis bacilli became maximal at a pH ranging from 7.9 to 8.9, while they were slight in a slightly acid medium. It was not possible to detect a marked difference in the glycerophosphatase activity of plague and pseudotuberculosis bacilli. The latter reacted to a somewhat lesser degree in this respect.

105. Kish, E. F., Observations on the use of the bacteriological method of rodent destruction. Author's Summary.  
Zh. mikrobiol. (1964) 9:147-148.  
(From the Sanitary-Epidemiological Station of the Kurgan Oblast.)

This note describes the local production and successful use of baits prepared with cultures of S. typhi murium.

106. Babalova, E. G., Observations on the eradication of rat rickettsiosis in some areas of the Georgian SSR.  
Zh. mikrobiol. (1964) 9: 70-75.  
(From the Tbilisi Vaccine and Serum Institute.)

The conclusions of the author were that

- "1. The occurrence of rat rickettsiosis in some localities of the Georgian SSR was characterized by a high incidence rate per 100,000 population, especially in Batumi, a slight mortality, a seasonal incidence in autumn and winter, persistence of the infection in the same households, houses and families for a number of years, simultaneous appearance of attacks among the members of one and the same family and in different families living in the same house, almost simultaneous appearance of the disease in persons living in neighboring houses and a high infection rate in the rats.
2. A study of the peculiarities of rat rickettsiosis rendered it possible to postulate that this disease was imported into Batumi in the thirties of the present century.

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3. The agglutination reaction with R. mooseri became positive in 100% of the patients with rat rickettsiosis from the 21st day of illness, the complement fixation test from the 16th day--the latter permitting a clearer differential diagnosis than the former.

4. From 1957 attacks of rat rickettsiosis disappeared among the inhabitants of all affected localities, as confirmed by a negative result of complement fixation tests made up to 1962 in all patients with fever, and also by the examination of 1,684 healthy inhabitants of Batum. The disappearance of rat rickettsiosis in man was the result of communal improvements (tearing down of old buildings, increased building of houses and rat-proofing of buildings) and of systematic deratization. At present the attack rate in the rodents had become markedly lowered thus giving hope for a complete eradication of rat rickettsiosis in the affected localities of the Georgian SSR."

107. Shevtsova, Z. V., Influence of irradiation on the preventive properties of the sera of guinea-pigs immunized with live brucella vaccine.  
Zh. mikrobiol. (1964) 9: 76-81.  
(From the Gamaleia IEM, AMS, USSR.)

This article can be quoted by title only.

108. Ginsburg, N. N. et al., Observations on the stability of the biological properties of the vaccinal anthrax strain STI-1. Zh. mikrobiol. (1964) 9:104-107.  
(From the Tarasevich State Control Institute of Medical Biological Preparations.)

The conclusions reached by the authors of this study were as follows:

"1. In cultures of the strain STI-1 which were subjected for 20 years after isolation of the strain to periodic subcultivation and which were kept in 30% glycerol solution, one could observe signs of dissociation manifested by a character of growth atypical of B. anthracis on solid and in fluid nutrient media.

2. A spore suspension of the 3rd generation of the strain STI-1 kept in a dried (lyophilized) condition for 18 years showed all biological properties characteristic for this strain, both regarding the character of growth on nutrient media and in regard to the reactogenicity and immunogenicity for animals.
3. It must be recognized from now on that preservation of dry spore-bearing standard cultures creates optimal conditions for the stabilization of the properties of the strain.
4. On account of the results of a study of the new standard vaccinal strain STI-1 (1962) one must recommend the use of this standard culture for the production of live anthrax vaccine and also for scientific investigations, using it in place of all other cultures (lines) of this strain hitherto used in the various laboratories."

109. Kravchenko, A. T., Ways of improving the quality of prophylactic and therapeutic preparations. Zh. mikrobiol. (1964) 9:107-112. (From the Tarasevich State Control Institute of Medical Biological Preparations.)

This general study, to which a moderately long reference list is appended, does not lend itself to the purpose of a brief review.

110. Iakovlev, A. M., A method for a comparison of the sensitivity of bacteriological nutrient media. Zh. mikrobiol. (1964) 9:135-140. (From the Order of Lenin Kirov Military-Medical Academy.)

The author of this article recommends to use for a comparison of the sensitivity of the nutrient media for bacterial growth a 50% effective inoculating dose as standard.

111. Suslov, I. M., The state of immunity against smallpox in vaccinated children at the ages of 4 and 8 years. Author's Summary. Zh. mikrobiol. (1964) 9: 144. (From the Kursk MI.)

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The author reports on 1,949 children who were successfully vaccinated against smallpox when 3 months old and re-vaccinated at the ages of 4 and 8 years. After the first re-vaccination 1,458 children (74.8%) reacted negatively, but after the 2nd re-vaccination at the age of 8 years a negative reaction was observed only in 525 (27%) of the children. The overwhelming majority (78.6%) of the children reacting to the re-vaccination on this occasion had given a negative reaction when re-vaccinated at the age of 4. Thus, the author maintained,

"a post-vaccinal immunity against smallpox can be preserved for 8 years only in few persons (17.4%). An inoculation with a negative result does not stimulate an immunogenesis and accordingly in a considerable part of those re-vaccinated at 4 years with negative results the immunity was lost."

The author recommended that children who reacted negatively to re-vaccination when 4 years old ought to be re-vaccinated after 1-2 years instead after 4 years.

112. Pshenichnova, R. A. and Kolevatova, E. A., The opsono-phagocytic test in Volhynian rickettsiosis. Author's Summary. Zh. mikrobiol. (1964) 9:144-145. (From the Perm Vaccine and Serum Institute.)

The author of this article, the technical details of which must be studied in the original or in a translation, found the opsono-phagocytic test to be specific and consequently useful for a laboratory diagnosis of Volhynian rickettsiosis.

113. TSapko, V. G., Toxicological and hygienic characterization of the insecticide chlorophos. Vrachebnoe delo (1964) 9: 85-88. (From the Toxicological Laboratory of the Kiev SR Institute of Labor Hygiene and Occupational Diseases.)

Quoted by title.

114. Malinina, Z. E. and Egorova, V. D., Study of the virulence of P. pestis and production of live anti-plague.

vaccines. Report III. The chemical composition of plague bacilli of different virulence.

Zh. mikrobiol. (1964) 10: 98-102. (From the All-Soviet SR Anti-Plague Institute "Mikrob".)

Making comparative tests with a virulent streptomycin-sensitive plague strain and a streptomycin-resistant and avirulent variant derived from it through streptomycin action, the authors found that the transition from the virulent into the avirulent state led in the first line to marked physiological changes: the rapidity of growth of the avirulent cells from small inocula as well as of the capsule formation decreased to some extent. If administered to guinea-pigs in doses of 10 million, the avirulent organisms survived at the site of administration for 6-10 days without causing a generalized infection, whereas administration of the virulent organisms of the parenteral strain in doses of 1,000 bacilli rapidly led to a generalized infection and death of the test animals within 4-5 days.

Cultivation of the avirulent variant at 28°C did not lead to marked changes in the chemical composition of the organisms but their content in RNA phosphorus was found to become somewhat increased. However, cultivation of the variant strain at 37°C led to marked changes - the content in phosphorus became almost two times less than in the virulent organisms whereas the content in polysaccharides, particularly in galactose, became 2-3 times increased. As shown by hemagglutination tests with the polysaccharide fraction, the serological activity of the avirulent variant, grown either at 28 or 37 degrees, became markedly lowered.

115. Faibich, M. M., Efficacy of immunization with live plague vaccines through the scarified skin.  
Zh. mikrobiol. (1964) 10:125-130.

The conclusions reached by the author were that

- "1. Single administration of live plague vaccines through the scarified skin to white mice and guinea-pigs produced an immunity of the same degree as that engendered by subcutaneous vaccination, but caused less marked reactions.
2. Most efficacious among the vaccines prepared from the EV strain and from the (Soviet) strains 148, 149 and 150 was the last mentioned vaccine.

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3. The live vaccine prepared from the strain 150 produced reactions analogous to those caused by the EV strain."

116. Bakhrakh, E. E. et al., The distribution of protein and polysaccharides in plague bacilli grown at 28°C and 37°C. Zh. mikrobiol. (1964) 10:135-139.  
(From the All-Soviet SR Institute "Mikrob".)

The conclusions reached in this instructive article, the text of which does not lend itself to a condensation, were that

"1. The cultivation of P. pestis on agar at 37°C, characterized by an increased capsule formation, led to an increased content in easily extractable protein components; however, the protein content of the organisms grown either at 28 or 37 degrees remained constant.

2. Regardless of the temperature of incubation, the polysaccharide containing arabinose was considerably more easily extractable than that containing glucose. This confirms the postulation that the plague bacillus has two specific carbohydrate components: a capsular component containing arabinose and a somatic component containing glucose."

117. Khokhlov, D. T., Influence of streptomycin on the efficacy of experimental immunization with live vaccines. Report II. Streptomycin administration at the time of anti-tularemia vaccination. Zh. mikrobiol. (1964) 10: 17-22.  
(From the Order of Lenin S. M. Kirov Military-Medical Academy.)

The author found that the administration of high streptomycin doses at the time of anti-tularemia vaccination did not lower the resistance of white mice to subsequent challenge with virulent tularemia bacilli.

Cortisone, introduced in 5 mg doses four hours before challenge proved useful for tests to assess the efficacy of anti-tularemia vaccine with the aid of vaccinal strains.

118. Stupnitskaia, V. M. et al., Natural tularemia foci in the Ukrainian SSR. Zh. mikrobiol. (1964) 10: 94-98.  
(From the Basseinov Sanitary-Epidemiological Station of the Ukrainian MH.)

As described in this article, the presence of natural tularemia foci in various raions of the Ukraine during the period from 1956 to 1962 was established through the examination of almost 120,000 ticks, from which 265 cultures of the causative organisms were isolated.

119. Sirotiuk, L. V., "Biological properties of the NIIEG\* vaccinal tularemia strains. Zh. mikrobiol. (1964) 10:116-120.  
(From the L. A. Tarasevich State Control Institute of Medical Biological Preparations.)

The author summarized that

"1. The NIIEG vaccinal tularemia strains No. 10, 33 and 53 practically retained their biological characteristics during storage in a lyophilized condition (in a saccharose-gelatin medium) for a period of 10 years.

2. The NIIEG vaccinal strains No. 10 and 53 are harmless for guinea-pigs and proved highly immunogenic in tests on white mice and guinea-pigs, but showed in comparison with the standard strain Gaiskii No. 15 an increased residual virulence for white mice.

3. On account of their present biological properties as well as of past experience of their large-scale practical use the strains 10 and 53 can be recommended as reserve strains for the manufacture of live tularemia vaccine.

4. The vaccinal NIIEG strain 33 proved on account of its agglutinogenic and immunogenic properties less suitable and cannot be recommended for vaccine manufacture."

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\* The abbreviation NIIEG stands for Nauchno-issledovatel'sko institut epidemiologii i gigeny (SR Institute of Epidemiology and Hygiene).



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120. Gubina, E. A. and Chernysheva, M. I., Study of the immunogenesis after vaccination with live combined vaccines. Report I. Study of the immunogenesis in guinea-pigs vaccinated with brucellosis and anthrax vaccines. Zh. mikrobiol. (1964) 10: 3-7.  
(From the Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

The authors found that guinea-pigs responded to the simultaneous administration of the STI anthrax vaccine and of the Br. abortus 19-BA vaccine in a successive manner, reacting first to the anthrax vaccine and then to that against brucellosis. In the course of this process the immunogenesis following the administration of the anthrax vaccine did not differ materially from that resulting from the administration of STI monovaccine. However, the combined vaccination exerted an inhibitory action on the subsequent immunogenic response to the brucellosis vaccine.

121. Braude, N. I., The role of opsonizing factors in the macrophage phagocytosis of brucellae. Zh. mikrobiol. (1964) 10: 71-76. (From the Moscow Institute of Epidemiology and Microbiology, MH, RSFSR.)

This study on the phagocytosis of brucellae in normal and immune mice does not lend itself to a brief review.

122. Levina, E. N. and Katz, L. N., The antigenic structure of the vaccinal strain of B. anthracis. Zh. mikrobiol. (1964) 10: 85-89.  
(From the Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

The authors concluded that

"1. The antigens of the vaccinal strain of B. anthracis are localized in the capsule and in the cellular membrane of the organism. One may distinguish between three antigenic complexes, showing separate localizations and being endowed with different properties.

2. The superficial capsular antigen, the localization of which could be determined with the aid of a luminescent capsular serum, was found to be sensitive to the action of pepsin and partly of trypsin and was apparently of the nature of peptides.

3. The proper capsular antigen was situated mainly in the basal part of the capsule and could be observed both with capsular and membrane sera; it contained substances of a protein-polysaccharide nature and was sensitive to the action of trypsin, chymotrypsin, hyaluronidase and lysozyme.

4. The antigen of the cell membrane, demonstrated with the aid of luminescent membrane sera, contained substances sensitive to the action of lysozyme and trypsin which were of a protein as well as of a polysaccharide nature."

123. Shiraeva, V. N. and Kashirova, A. K., The vibrios found in the sea-water of the port of Odessa. Zh. mikrobiol. (1964) 10: 145.  
(From the Anti-Plague Laboratory of the Port of Odessa.)

The results obtained by the authors when testing numerous strains of vibrios isolated from sea-water and also from sewer water in the port of Odessa must be studied in the original or in a translation of their note.

124. Zhalko-Titarenko, V. P., An experimental study of polydispersive bacterial aerosols. Report I. A theory of the method of determining the viability of microorganisms in the polydispersive bacterial aerosol. Zh. mikrobiol. (1964): 61-66.  
(From the Kiev Institute of Microbiology and Epidemiology.)

This article can be quoted by title only.

125. Somova, A. G., Chemotherapy of experimental cholera infection and intoxication. Antibiotiki 9 (1964) 10:903-907.  
(From the Rostov-on-Don SR Anti-Plague Institute.)

The most important observations made by the author were that

- (a) Oxytetracycline, monomycin, colimycin and mycerin, administered intramuscularly in doses of 2,500 units to white mice which were infected with 1 DCL of a cholera strain either

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2 hours after the administration of the antibiotics or simultaneously with them prevented the death of all animals tested. However, administration of the antibiotics 2 or 4 hours after the infection, though leading to a disappearance of the vibrios from the blood and internal organs of the mice, did not save their life.

- (b) Levomycetin, pasomycin and colimycin exerted a detoxifying action if intramuscularly administered in 2,500 unit doses one hour before the injection of 1 LD<sub>50</sub> doses of the complete cholera antigen.

126. Klassovskii, L. N., The influence of the size of the inoculum on the growth of the plague bacillus in the presence of streptomycin. Antibiotiki 9 (1964) 10:923-925. (From the Central-Asian SR Anti-Plague Institute, Alma-Ata.)

The observations of the author do not lend themselves to the purposes of a brief review. The article must therefore be studied in the original or in a translation.

127. Zhmurova, O. P. et al., Ways of elimination of brucellosis, tularemia, malaria, pappataci and hemorrhagic fever in the Crimean Oblast. Annotation. Vrachebnoe delo (1964) 10:118-119. (From the Sanitary-Epidemiological Station of the Crimean Oblast and the Department of Infectious Diseases and Epidemiology of the Kiev MI.)

According to the authors of this note, malaria, tularemia and pappataci fever have been eliminated in the Crimea and conditions have been created for an eradication of brucellosis and Crimean hemorrhagic fever within the near future.

Whereas the incidence of brucellosis in the oblast in 1934 was 7.8 per 10,000 inhabitants, it reached a level of 13 in 1946. The main reservoirs of the infection were the sheep and goats and accordingly the incidence of brucellosis in man was highest among the people engaged in breeding and handling these animals.

A campaign against brucellosis was commenced in 1951 and intensified in 1955, in the course of which the affected sheep and goats were slaughtered. During the period from 1958 to 1961 steps were also taken to eliminate the infection among

the cattle. Moreover arrangements were made for public health propaganda and for the ambulatory treatment of brucellosis patients. At present the disease has become absent among the communal herds of sheep and goats. Human attacks originating from these animals have ceased to occur and infections contracted from the cattle have become sporadic. It is expected that brucellosis will become altogether absent in 1964-1965.

Tularemia, which was first registered in the Crimea in 1951-1952, became soon infrequent, only 2 attacks being recorded in man in 1953 and one in 1954, since then the disease has no more been noted. During the period from 1952 to 1956 52.4% of the rural population and 30.9% of the urban populations received anti-tularemia vaccinations; since then main attention is being paid to an immunization of the people in the rural areas.

Owing to large-scale anti-rodent campaigns and agro-technical improvements the incidence of small rodents has become substantially decreased. Recent surveys failed to show evidence of the infection in the rodent and tick populations.

Malaria, which had become rampant as a result of the occupation of the Crimea by the German armed forces, could be brought under control after the war and became absent in 1959. Large-scale campaigns against the phlebotomus vectors led also to a disappearance of pappataci fever. Hemorrhagic fever, first observed in the Crimea in 1944, showed a decreasing incidence after the war, no attacks being recorded from 1959 to 1961 and only 2 in 1962. This decreased incidence was no doubt due to campaigns conducted with the aid of DDT and benzene hexachloride against the tick Hyalomma plumbeum.

128. Drobinskii, I. R., Gamaside rickettsiosis, Kishenev (1962).  
Reviewed in Vrachebnoe delo (1964) 10:155-156.

This book review can be mentioned by title only.

129. Avakian, A. A. and Al'tshtein, A. D., A study of the acute and chronic infection caused by the tick-borne encephalitis virus in tissue cultures. Report III. The possible mechanism of chronic infection.  
Vopr. virusol. 9 (1964) 5:575-580.  
(From the Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.)

This article can be quoted by title only.

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130. Semenov, B. F. et al., Post-vaccinal and post-infectious immunity in tick-borne encephalitis.  
Vopr. virusol. 9 (1964) 5:597-601.  
(From the Moscow SR Institute of Virus Preparations.)

The conclusions reached by the authors were that

"1. In persons immunized with the tissue vaccine against tick-borne encephalitis it comes to the appearance or to a titer increase of the anti-hemagglutinating and virus-neutralizing antibodies, detectable with the aid of tests in white mice (neutralization reaction) or in tissue cultures (inhibition of the cytopathogenic activity of the virus in monolayer cultures or in cells suspensions--color test). An examination of the sera of persons who had not been in contact with the virus, yielded 30% positive results in the case of the hemagglutination inhibition test, in 36% in the case of the neutralization test, in 40% according to the cytopathogenic effect and in 48% in the case of the color test. The corresponding percentage figures in the persons showing antibodies before the vaccination were 65%, 74%, 95% and 95%.

2. The average antibody titers in the first group of the immunized corresponded to those found in the sera of people residing in endemic foci who had suffered from inapparent infections. The degree of immunity in the second group (showing antibodies before vaccination) was equal to that found in convalescents."

131. Chumakov, M. P. et al., Contribution to the problem of the rapidity of the accumulation of antibodies in persons in the early period after vaccination and re-vaccination against tick-borne encephalitis.  
Vopr. virusol. 9 (1964) 5:601-604.  
(From the Poliomyelitis and Virus Encephalitis Institute, AMS, USSR and from the Department of Epidemiology of the Moscow Order of Lenin I. M. Sechenov Medical Institute.)

The results obtained by the authors of this brief but well documented article must be studied in the original or in a translation.

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132. Unanov, S. S. and Shutov, A. V., Materials to the study of the immunological shifts in persons vaccinated and re-vaccinated with the anti-encephalitis tissue vaccine. Vopr. virusol. 9 (1964): 604-608.  
(From the Moscow SR Institute of Virus Preparations, MH, USSR.)

The authors concluded that (a) administration of the anti-encephalitis tissue vaccine to persons showing negative serological reactions led to the appearance of a post-vaccinal immunity in 25%-43.7%; (b) re-vaccination after 12 months led to an intensive accumulation of antibodies in 71.6-75.6%; and (c) 12 months after the initial course of immunization specific antibodies could be observed in 32.7%.

133. Votiakov, V. I. and Lemeshevskaya, T. I., Materials to the study of tick-borne encephalitis in Belorussia. Report II. Cultivation of the Belorussian strains in tissue cells. Vopr. virusol. 9 (1964) 5:608-614.  
(From the Belorussian Institute of Epidemiology, Microbiology and Hygiene, Minsk.)

This well documented article can be quoted by title only.

134. Maiorova, G. F. et al., The diagnostic importance of the chicken erythrocytes lysis test in hemorrhagic fever with a renal syndrome. Vopr. virusol. 9 (1964) 5:614-617.  
(From the N. F. Gamaleia Institute of Experimental Medicine and the D. I. Ivanovskii Institute of Virology, Moscow.)

Commenting on their findings the authors stated that

"With the aid of the chicken erythrocytes lysis test performed with the sera of persons suffering from hemorrhagic nephroso-nephritis in a dilution of 1:40 and in higher dilutions during the first month of illness the hemorrhagic factor could be detected in 57.6-65%, in the case of influenza patients in 30%. The hemorrhagic factor was found considerably less frequently (in 9.6%) in patients with liver and kidney affections of a non-infectious nature and it was practically absent from the sera of healthy persons or such suffering from other infectious diseases. One may assume, therefore, that to some

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extent this reaction is selective for hemorrhagic nephroso-nephritis. Still, the presence of a large percentage of positive reactions in the case of influenza leads to the thought that common mechanisms for this reaction may exist in some infectious diseases."

135. Vashkov, V. I. et al., Determination of the toxicity of the propellents used in aerosol balloons.

Gigiena i sanitariia 29 (1964) 10: 61-65.

(From the Central SR Disinfection Institute, Moscow and the Central Construction Bureau of the Sovmarkhoz of the Latvian SSR, Riga.)

136. Medved', L. I. et al., Observations on the methods of study of the penetration of chemical substances through the intact skin. Gig. i sanit. 29 (1964) 10: 71-76.

(From the Kiev SR Institute of Labor Hygiene and Occupational Diseases.)

These two articles can be quoted by title only.

137. Pavlovskii, E. N., Prirodnaia ochagovost' transmissivnykh boleznei v sviazi s landshaftnoi epidemiologii zooantroponozov (The natural focality of transmissible diseases with special reference to the landscape epidemiology of zoonanthroponoses). Moscow-Leningrad 1964.

This nicely printed and illustrated book, which has become recently available in the National Library of Medicine, can be mentioned by title only.

138. Diuisalieva, R. G. and Fedorova, N. I., Phasic variability of Rickettsia burneti studied with the aid of the agglutination reaction. Zh. mikrobiol. (1964) 11: 24-27.  
(From the Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

Studying the serological differences between R. burneti strains in the first phase (propagated in the animal body) and of such in the second phase (grown in the yolk sac of chick embryos) the authors found that for the serological diagnosis of Q-fever besides complement fixation tests advantage could be taken of agglutination tests with antigens prepared from strains in either phase.

139. Korol, A. G., Observations on brucella-like cultures isolated from steppe muridae. Zh. mikrobiol. (1964) 11: 27-31. (From the Sanitary-Epidemiological Station of the Kherson Oblast.)

The author describes the isolation of a number of brucella-like strains from small steppe rodents, mainly from M. musculus. With one exception these strains could not be ranged into any of the three types of brucellae.

140. Elkin, I. I. and IAshkul, V. K., Fundamental problems of epidemiological geography. Report II. The concept of nosological areas. Zh. mikrobiol. (1964) 11: 48-54. (From the First Moscow Order of Lenin I. M. Sechenov Medical Institute.)

This article must be studied in the original or in a translation.

141. Vlodavets, V. V., Observations on the possibility of using B. prodigiosum as an experimental model for bacterial aerosols. Zh. mikrobiol. (1964) 11: 65-68. (From the Sysin Institute of General and Communal Hygiene, AMS, USSR.)

The author found B. prodigiosum unsuitable for aerosol studies.

142. Babalova, E. G., Q-fever in some localities of the Georgian SSR. Zh. mikrobiol. (1964) 11:117-122. (From the Tbilisi Vaccine and Serum Institute.)

Concluding her well documented article, the details of which cannot be briefly reviewed, the author stated that

"Q-fever has a considerable share in the pathology of infections in the Georgian SSR but the practitioners are little acquainted with the clinique and epidemiology of this disease and detect and diagnose it in an insufficient manner.

Laboratory diagnosis is of great importance under these circumstances, but the centralized supply of antigen is insufficient."



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143. Fedorova, T. N. and Sizenova, G. A., The incidence of Omsk hemorrhagic fever in man and in musk-rats during winter. Zh. mikrobiol. (1964) 11:134-136.  
(From the Omsk Institute of Naturally Focal Infections and the Omsk Kalinin Medical Institute.)

The observations recorded in this article cannot be briefly reviewed.

144. Rubtsov, N. S., Complications connected with smallpox vaccination. Zh. mikrobiol. (1964) 11:136-137.  
(From the Sanitary-Epidemiological Station of the Karaganda Oblast.)

The author describes two instances of contact infection in persons living close to a recently vaccinated small child.

145. Zil'fian, V. N. and Mnatsakanian, A. G., Geographical distribution and some peculiarities of the natural tularemia foci in the Armenian SSR. Author's Review. Zh. mikrobiol. (1964) 11:141-142.  
(From the Erevan Medical Institute and the Republican Sanitary-Epidemiological Station.)

As can be gathered from this note, the tularemia situation in Armenia, where the presence of this infection had been detected in 1949, has become quite favorable. During the last 5 years about half the rural population has received anti-tularemia vaccinations and in the opinion of the authors it is now possible to reduce the scope of this prophylactic work.

146. Boiko, L. D. and Sverchkov, A. N., Clearance of the microflora from the air through the action of artificial aero-ionization. Zh. mikrobiol. (1964) 11:142-143. (From the Kiev Institute of Epidemiology and Microbiology.)

The authors came to the conclusion that artificial aero-ionization may be successfully used in closed chambers and boxes, but that the use of this method in larger premises needs further study.

147. Nabokov, V. A. et al., Use of desiccating adsorptive powders for the fight against arthropods.  
Med. parazitol. 23 (1964) 5:515-518.  
(From the E. I. Martsinovskii Institute of Medical Parasitology and Tropical Medicine, MH, USSR, Moscow.)

As described in this article, in vitro and in vivo tests with the Soviet-produced silica-gel and the imported product Dry-Die-67 (Silica-aerogel-67) gave good results in the fight against ticks, flies, lice and bed-bugs.

148. Turich, M. L., Importance of microfumigation in the mechanism of the action of DDT and other contact insecticides.  
Med. parazitol. 23 (1964) 5:519-524.  
(From the E. I. Martsinovskii Institute of Medical Parasitology and Tropical Medicine, MH, USSR, Moscow.)

The main conclusions reached by the author of this article were that

"1. The statements made in the literature regarding the mechanism of the penetration of DDT through the cuticle of insects and the absence of fumigating properties of this insecticide need a radical revision.

2. In our opinion a process of microfumigation plays a leading role in the process of penetration of DDT. When in contact with the deposits, the insects are exposed to the action of DDT fumes, constantly forming from the particles on the treated surfaces and the bodies of the insects."

149. Zhukova, L. I., Field trials with new repellents against gnats and Ixodes persulcatus ticks. Report I.  
Med. parazitol. 23 (1964) 5:537-540.  
(From the Department of Entomology of the E. I. Martsinovskii Institute of Medical Parasitology and Tropical Medicine, MH, USSR, Moscow.)

The authors of this article, the details of which must be studied in the original or in a translation, describes several new Soviet-produced repellents found effective against gnats and/or ticks.

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150. Sidorov, V. E. and Grokhovskaia, I. M., Influence of X-rays on mature ticks. Report I. Med. parazitol. 23 (1964) 5:560-563.  
(From the Department of Naturally Focal Infections of the N. F. Gamaleia IEM.)

The authors found that irradiation of starving ticks of the species Hyalomma asiaticum, while exerting no fatal action on the ticks and not interfering with their main physiological functions, partially or completely inhibited the reproductive functions. X-ray irradiation of the male ticks might therefore serve as a method of biological warfare against ticks.

151. Nikiforov, L. P. and Gibet, L. A., Classification of the natural foci of tick-borne encephalitis in the western part of the Krasnoyarsk Krai. Med. parazitol. 23 (1964) 5:563-571. (From the E. I. Martsinovskii Institute of Medical Parasitology and Tropical Medicine, MH, USSR.)

152. Grasis, V. K. and Prisiagyna, L. A., Some materials regarding the landscape epidemiology of tick-borne encephalitis in the Krasnoyarsk Krai. Med. parazitol. 23 (1964) 5:572-576. (From the E. I. Martsinovskii Institute.)

These two articles can be quoted by title only.

153. Merinov, V. A., A thermo-electrode with water-jacket heating for the collection of the larvae and nymphs of ixodes ticks and gamasidae falling off from the rodents into the nest material.  
Med. parazitol. 23 (1964) 5:577-582.  
(From the Department of Entomology of the Institute of Medical Parasitology and Tropical Medicine, MH, USSR.)

This illustrated article cannot be briefly reviewed.

154. Ivanova, L. V., A contribution to the problem of the chemoreception of the insects. Survey of the literature.  
Med. parazitol. 23 (1964) 5:608-612.

This review, quoting numerous, mainly foreign references, can be mentioned by title only.

155. Tararin, R. A. and Starostina, A. V., Remarks on the use of aerosols for disinsectization in enzootic foci.  
Referate. Med. parazitol. 23 (1964) 5:616-617.  
(From the Order of Lenin S. M. Kirov Military-Medical Academy and the Leningrad Anti-Plague Observation Station.)

As described in this note, the authors obtained satisfactory results when exposing fleas of the species N. fasciatus and X. gerbilli caspica to hexachlorane aerosols produced with the aid of smokepots.

156. Shiranovich, P. I. and Sheldakova, V. A. (Rostov-on-Don): Influence of poisoning of the burrows on the micropopulation of the suslik nests. Authors' Review.  
Med. parazitol. 23 (1964) 5:617-618.

Using a mixture of cyanplav and benzene hexachloride for the dusting of susliks burrows, the authors obtained much better results in the case of Nosopsyllus tesquorum, a species tending to stick to the rodents than in that of the nest-dwelling species Neopsylla setosa.

157. Bykov, L. T. and Belkina, N. B., Methods of collecting fleas from gerbil nests during plague surveys in the sandy areas northwest of the Caspian Sea. Authors' Review.  
Med. parazitol. 23 (1964) 5: 621.  
(From the Ural Anti-Plague Station.)

As found by the authors, satisfactory numbers of fleas could be collected with the aid of flannel braids, introduced into the gerbil burrows for a few seconds.

158. Luzhkov, A. D., An effective method of catching small rodents in the tundra. Med. parazitol. 23 (1964) 5: 622.  
(From the Leningrad SR Veterinary Institute.)

Since baited traps did not prove satisfactory under the conditions of the arctic tundra, the author of this brief illustrated article devised a simple baitless clap-trap, which was found to be suitable for the capture of lemmings and voles.

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159. Sotnikova, A. N. and Soldatov, G. M., Isolation of the tick-borne encephalitis virus from fleas of the species Ceratophyllus tamias Wagn. Med. parazitol. 23 (1964) 5:622-623. (From the Anti-Plague Station of the Primorsk Krai.)

The authors of this note succeeded in isolating with the aid of passages in intracerebrally infected white mice the tick-borne encephalitis virus from a pool of 12 C. tamias fleas collected from a squirrel.

160. Noteworthy articles quoted in a reference list published in the journal Med. parazitol. 23 (1964) 5:629-637.

- 1) Metody izucheniia prirodnkh ochagov boleznie cheloveka (Methods of studying the natural foci of human diseases). Edited by P. A. Petrisheva and N. G. Olsuf'ev, Moscow (1964), 307 pp.
- 2) Prirodnaia ochagovost' boleznei i voprosy parazitologii (The natural focality of diseases and the problems of parasitology). Trudy inst. zool. i parazitol. AN Kirgiz. SSR, Frunze (1964) Vypusk 4, 415 pp.
- 3) Bogomiakov, M. P., Observations on tick-borne encephalitis among the population of the Perm Section of the Sverdlov Railroad. Trudy Permsk. med. inst. 43 (1963): 101-106.
- 4) Gladkikh, S. G., Sredstva otpugivaiooshchie krovosushchikh nasekomykh i kleshchei (Repellents for blood-sucking insects and ticks). Moscow (1964), 120 pp.
- 5) Duras, T. I. et al., Characterization of the half-inhabited tick-borne encephalitis focus in the environs of the town Nakhodka. Dokl. Irkutsk. protivochumn. inst. 5 (1963): 20-22.
- 6) Nekipelov, N. V., Sparrow-like birds hibernating in the Pribaltikum in connection with the occurrence of the tick-borne encephalitis virus in them. Ibidem, 137-144.
- 7) Moskalenko, V. V., Observations on the length of life of some species of rodent fleas in the Primor'e. Ibidem, 166-169.
- 8) Zhukova, R., A case of tick-borne encephalitis in Kirghizia. Sov. zdravookhr. Kirgiz. (1964) 2: 61-62.

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- 9) Kleshchevoi entsefalit v UASSR (Tick-borne encephalitis in the Ukrainian ASSR). Sbornik trudov Izhevsk. med. inst. 20 (1964) Part 1, 159 pp.
- 10) Lavrent'ev, P. A., Use of chlorofos for the fight against ticks and gnats. Veterinariia (1964) 5:101-102.
- 11) Lopukhov, M. A. and Den'gin, N. IA., Chlorofos in the fight with ticks and insects. Ibidem, 6:111-112.
- 12) Veglina, M. P., Thermos bags for the transport of the blood of animals and of biological preparations. Ibidem, 3:100-101.
- 13) Sotnikova, A. N. and Soldatov, G. M., Isolation of the tick-borne encephalitis virus from the large black-headed hawk-finch. Dokl. Irkutsk. protivochumn. inst. 5 (1963): 28-29.
- 14) TSintsadze, G. G., Fight against the burrow ticks with the aid of the aerosol method (chlorofos and hexachlorane). Sbornik trudov n.-i. inst. med. parazitol., Tbilisi 4 (1963) Pt. 2:181-184.
- 15) Shilova, S. A. et al., Contribution to the epidemiology and epizootiology of the tick-borne encephalitis foci of the Central Ural. Trudy tsentraln. n.-i. dezinf. inst. 16 (1963) 278-288.
- 16) Vishniakov, S. V. et al., Tentative field investigations of the method of dusting suslik burrows in the mountain plague foci, preservation of the dust and DDT in the burrows and the mechanism of disinsectization. Ibidem, 313-321.
- 17) Osipian, V. T., Disinsectization of localities with the aid of DDT and chlorofos aerosols. Ibidem, 169-176.
- 18) Alekseev, A. N., Observations on the sensitivity of the pre-imaginal developmental phases of fleas (Aphaniptera) to insecticides. Entomol. obozrenie 43 (1964) 2:301-307.
161. Mergol'd, D. P., Clinique and diagnostics of the spinal affections due to brucellosis in the terminal stage of the disease. Scvetskaia meditsina (1964) 10: 48-55. (From the Department of General Surgery of the Kuibyshev Medical Institute.)

This careful study can be mentioned by title only.

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162. Vasiuta, IU. S. and Chabovskii, V. I., Observations on the epidemiology of an outbreak of hemorrhagic fever with a renal syndrome.  
Sov. medits. (1964) 10: 61-64.

The observations made by the authors during an outbreak of hemorrhagic fever taking place in 1961 in the Kirov Oblast cannot be briefly reviewed.

163. Danovskii, L. V., Observations on the clinique of hemorrhagic fever with a renal syndrome in the south-eastern part of the Tatar ASSR.  
Sov. medits. (1964) 10: 64-68.  
(From the Leningorsk Municipal Hospital.)

Summarizing the results of his investigations in the concluding paragraph of his text, the author stated that

"The observations made permit to conclude that there exist in the south-eastern part of the Tatar ASSR natural foci of hemorrhagic fever with a renal syndrome. The attacks run their course with signs of a general intoxication, fairly marked hemorrhagic manifestations with a predilection for an affection of the kidneys and signs of an acute renal insufficiency of the type of the Far-Eastern hemorrhagic nephroso-nephritis."

164. Rykalo, A. I., Likhoradka Q [patologicheskaiia anatomiiia gi-stologiiia, voprosy patogeneza] (Q-fever--morbid anatomy and histology, problems of pathogenesis). Koshitse, Czechoslovakia.  
Vrachebnoe delo (1964) 11:149-151.

This review of a book on Q-fever, written by its author, can be mentioned by title only.

165. Korostelev, V. E., The problems of epidemiology dealt with at the 14th All-Soviet Congress of Epidemiologists, Microbiologists and Infectionists.  
Zh. mikrobiol. (1964) 12: 3-8.  
(From the Gamaleia IEM, AMS, USSR.)

A noteworthy report, dealing with "The tasks of epidemiology in connection with the problem of lowering the

incidence of infectious diseases and their liquidation" was rendered at this conference by I. I. Elkin. Voicing the opinion now accepted by most Soviet epidemiologists, the lecturer stated that one was entitled to speak of the "liquidation" of an infectious disease only when its causative organism had ceased to exist in the area concerned. If effective methods were available, it was sometimes sufficient to take action against one of the links of the chain of factors conditioning the epidemic process in question. For instance, leprosy could be eradicated through a strict isolation of the sufferers, smallpox through the creation of a herd immunity through properly organized inoculation campaigns.

Sometimes an action against two links of the chain was indicated. Thus typhus and relapsing fever may be liquidated through hospitalization of the sufferers and destruction of the vectors in the foci of infection, malaria through treatment of the patients and mosquito eradication.

Elkin expressed the hope that it will be possible markedly to lower the incidence of diseases like dysentery, influenza, tularemia and some of the diseases occurring in natural foci. In the fight against these diseases adequate methods of forecasting their incidence were of great importance and great attention had to be paid, therefore, to a study and improvement of these methods.

166. Egorova, S. V. et al., A mixed epizootic of tularemia and Omsk hemorrhagic fever among musk-rats in Western Siberia. Zh. mikrobiol. (1964) 12: 26-29.  
(From the Omsk Institute of Naturally Focal Infections, MH, RSFSR.)

In the course of a tularemia epizootic among musk-rats taking place during the winter of 1960-1961 in the Kurgan, Omsk and Novosibirsk oblasts it was noted that some of the infected animals showed at autopsy abundant hemorrhages in the internal organs - a feature not characteristic for tularemia. With the aid of complement fixation tests made with materials from white mice which had been infected with the brain of dead musk-rats it could be established that, besides with tularemia, the animals in question had been infected with the virus of Omsk hemorrhagic fever. As the author stressed, the possibility of such a combined infection ought to be kept in mind whenever an epizootic takes place among the musk-rats.



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167. Shashaev, M. A., Biological characterization of the plague bacteriophage. Zh. mikrobiol. (1964) 12: 32-35.  
(From the Central-Asian SR Anti-Plague Institute, Alma-Ata.)

This article, reporting the results of an investigation of 13 plague bacteriophages, does not lend itself to the purposes of a brief review. Dealing with this subject the author refers to earlier publications by Ershov and Bykova (1962, 1963), which have been reviewed in these abstracts (see Abstract No. 678, p. 386 and Abstract No. 151, p. II/131).

168. Petrova, L. S., Quantitative composition of the antigens of V. cholerae according to the results of specific agar precipitation tests. Zh. mikrobiol. (1964) 12: 62-67.  
(From the All-Soviet Anti-Plague Institute "Mikrob".)

This article can be quoted by title only.

169. Pogorelev, N. A., Observations on the variability of the causative organism of brucellosis. Report I. Obtention and characterization of inagglutinable brucellosis cultures. Zh. mikrobiol. (1964) 12: 94-98. (From the SR Anti-Plague Institute of the Caucasus and Transcaucasus.)

The conclusions reached by the author were that

- "1. A study of 203 museum strains of brucellae showed that 1.5% of them were inagglutinable.
2. Prolonged cultivation of brucellae belonging to the 3 types on media containing immune serum led to the appearance of mucous colonies which had not lost the ability of becoming agglutinated with specific O sera and which, after 3-4 subcultivations on ordinary media, again showed the colonial form of their strains.
3. Repeated subcultivation of brucella strains (every 4-5 days for 38 times) on coagulated egg media did not lead to a loss of agglutinability with specific O serum.

4. Through the action of specific phages on broth cultures after 4-5 days variants of the brucellae were obtained, which did not become agglutinated by specific O serum.

5. The inagglutinable strains obtained in this manner from museum strains did not materially differ from the latter in respect to their morphological and cultural properties.

6. The acquisition of inagglutinability by brucellae led to a partial loss of their virulence, doses of 1,000 organisms or higher doses becoming necessary to produce a generalized infection."

170. Perelatorov, V. D., Hemorrhagic fever in the Rostov Oblast. Author's Review. Zh. mikrobiol. (1964) 12:117-118. (From the Sanitary-Epidemiological Station of the Rostov Oblast.)

The author of this note concluded from his observations, of which the detailed results must be studied in the original or in a translation, that natural foci of Crimean hemorrhagic fever existed in the Rostov Oblast and that possibilities for an affection of man by this disease existed there during spring and summer. It was necessary, therefore, to avert this danger by protecting the people against tick attacks and by tick eradication.

171. Terskikh, I. I. and Zairov, G. K., A comparative study of the trachoma and the ornithosis viruses. Vopr. virusol. (1964) 6:674-677. (From the D. I. Ivanovskii Institute of Virusology, AMS, USSR.)

The conclusions reached in this article, which is illustrated by 12 color microphotographs, were that

"1. According to the histological and biochemical findings the cytoplasmic inclusion bodies in trachoma and brucellosis show three developmental stages.

2. A clear differentiation between the trachoma and ornithosis viruses can be made with

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the aid of luminescent microscopy. This method can be used for laboratory tests.

3. It is proposed to use the method as a diagnostic test in the study of trachoma and ornithosis.

4. When determining the infectious titer according to the quantity of infected cells in the tissue cultures, it is indispensable to ascertain also the stage of development of the inclusion bodies. Only those in the third stage of development are endowed with infectious properties."

172. Pogodina, V. V. and Khan-Shi-Tsze: A study of the correlation between the pathogenicity of the viruses of the tick-borne encephalitis group for animals and the peculiarities of the virus multiplication in the animal body. Report I. Correlation of the viscerotropism of the viruses with the pathogenicity of the strains after peripheral introduction. Vopr. virusol. (1964) 6:682-690.  
(From the Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.)

The conclusions reached in this well documented article were that

1. Characteristic for a virus strain of eastern tick-borne encephalitis (Khabarovsk-17) introduced peripherally were the following peculiarities of multiplication in the animal body: a marked viscerotropism, development of an intense viremia and subsequent virus multiplication in the central nervous system.

2. A second strain of eastern tick-borne encephalitis (Fateev) possessed marked neurotropic properties, but a slight viscerotropism. Only if massive doses were administered peripherally, did the strain become localized at the site of infection, but it did not substantially multiply in the lymphatic system and produced no considerable viremia.

173. Gaidamovich, S. IA. and Vagzhanova, V. A., Early detection of the arboviruses in tissue cultures with the method

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of hemagglutination. Vopr. virusol. (1964) 6:712-714.  
(From the D. I. Ivanovskii Institute of Virusology,  
AMS, USSR.)

As described in this note, for the technical details of which the original or a translation must be consulted, the hemagglutination reaction was found useful for the early detection of the viruses of Venezuelan encephalomyelitis and of the western variant of American equine encephalomyelitis in tissue cultures of chick embryo fibroblasts.

174. Drozdov, S. G. et al., An apparatus for the cultivation of tissue cultures in an atmosphere containing 5% carbon dioxide. Vopr. virusol. (1964) 6:723-725.  
(From the Institute of Poliomyelitis and Virus Encephalitis, AMS, USSR.)
175. Efomovich, E. I. and TSirkin, R. S., A contribution to the methodology of preparing mounts for electron microscopy. Vopr. virusol. (1964) 6:725-727.  
(From the M. I. Kalinin Medical Institute, Omsk.)

These two illustrated articles can be mentioned by title only.

Annotations

176. Anishchenko, G. A., Experience regarding the detection of the source of ornithosis infection. Vopr. virusol. (1964) 6: 729.  
(From the Sanitary-Epidemiological Station of the Donetsk Oblast.)

Five foci of ornithosis were detected in the Donetsk Oblast, of which four were of a familial and one of an occupational character; the number of patients totalled 20. The infections were contracted from pigeons or ducks, in which the presence of the disease could be proved through serological tests.

177. Bazhedomova, M. A. and Zakirova, S. F., A study of the hemagglutinating properties of the viruses of the tick-borne encephalitis group after numerous passages in tissue cultures of SOTS cells and human embryo kidney cells. Vopr. virusol. (1964) 6: 730. (From the Sverdlovsk SR Institute of Virus Infections.)

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The authors of this note, for the details of which their text must be consulted, found that passages of the viruses of the tick-borne encephalitis group (including besides strains of tick-borne encephalitis such of the Kyasanur forest virus and of the viruses of Omsk hemorrhagic fever and of two-wave meningo-encephalitis) on tissue cultures of SOTS cells enhanced the hemagglutination titers. Tick-borne encephalitis viruses grown on human embryo kidney epithelium cells were not endowed with hemagglutinating properties.

178. Vasil'eva, L. D. and Poslanichik, A. L., Experience of immunization against Q-fever with a vaccine prepared from the spleens of white mice infected with R. burneti. Vopr. virusol. (1964) 6: 732.  
(From the State Order of Lenin S. M. Kirov Institute for the Post-Graduate Training of Physicians, Leningrad.)

The authors came to the conclusion that the vaccine referred to in the title to this note, because producing severe reactions and only a low degree of immunity, was not suitable for the prophylaxis of Q-fever.

179. Vigovskii, A. I., Virusological characterization of tick-borne encephalitis in the Western Ukraine.  
Vopr. virusol. (1964) 6: 733.  
(From the Institute for Poliomyelitis and Virus Encephalitides, AMS, USSR.)

The organ extracts used by the authors were prepared by triturating the liver and spleen of the animals under test with the aid of quartz sand in a mortar and making suspensions with normal saline containing antibiotics. The suspensions were inactivated at 60°C for 20 minutes and centrifuged. The supernatants were stored at a temperature of 4°C until they were used for neutralization tests with 20% virus--containing brain suspensions as antigen.

The results obtained with this method were apparently satisfactory.

180. Kantorovich, R. A. et al., Experience of a comparative epidemiological-serological study of different types of tick-borne encephalitis foci. Vopr. virusol. (1964) 6: 734. (From the D. I. Ivanovskii Institute of Virusology, AMS, USSR.)

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In order to study the endemic and potentially endemic foci of tick-borne encephalitis in the Kirov Oblast and the Udmurt ASSR, the author tested the sera of 2,460 persons and of 249 animals with the aid of complement and virus neutralization tests. Instances of latent infection were found to be numerous, amounting to 80% in some population groups. The percentage of the inapparent forms of the disease rose hand in hand with an increase of the clinically manifest attacks of the disease. 50% of the latter occurred in persons with a considerable antibody level in their blood. The immunity produced by latent infections appears, therefore, to be incomplete.

181. Kekcheeva, N. K., Experimental study of the chemoprophylaxis of Tsutsugamushi fever. Vopr. virusol. (1964) 6: 735.  
(From the Rickettsiosis Department of the Gamaleia IEM, AMS, USSR.)

The author obtained promising results when immunizing white mice with suspensions of live R. orientalis to which tetracycline had been added.

182. Pantov, V. N., Observations on the importance of the antigen dose for the detection of complement-fixing antibodies in the serum of guinea-pigs immunized with live and killed Q-fever vaccines.  
Vopr. virusol. (1964) 6: 737-738.

The author recommended a standard antigen dose of 4 units for complement fixation tests with sera of guinea-pigs immunized against Q-fever.

183. Peterson, O. P. et al., A contribution to the problem of purifying the vaccinia and poliomyelitis vaccines with the aid of chromatography. Vopr. virusol. (1964) 6: 738.  
(From the D. I. Ivanovskii Institute of Virusology, AMS, USSR.)

184. Solomin, N. N. et al., Observations on the use of tissue cultures for the study of the hemagglutinating properties of the tick-borne encephalitis virus and on the possibility of using cultural antigens for the hemagglutination inhibition test.  
Vopr. virusol. (1964) 6: 739.  
(From the Sverdlovsk Institute of Virus Infections.)

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The technical details recorded in these two notes must be studied in the original or in a translation.

185. Terskikh, I. I. et al., Antibiotic treatment and the specific diagnosis of ornithosis.  
Vopr. virusol. (1964) 6: 740.  
(From the D. I. Ivanovskii Institute of Virusology, AMS, USSR.)

For the diagnosis of ornithosis in patients who had been treated with antibiotics, the authors recommended in the first line allergic skin tests followed by repeated complement fixation tests.

186. Feoktistov, A. Z. and Kondrashova, Z. N., Investigations of the hemagglutinating properties of the tick-borne encephalitis strains isolated in the Khabarovsk Krai and their sensitivity to hemagglutination inhibition. Vopr. virusol. (1964) 6: 741.  
(From the Anti-Plague Station of the Khabarovsk Krai.)

The 32 strains of the tick-borne encephalitis virus investigated showed a marked hemagglutinating activity. Some of the strains lost this property when stored in glycerol but it could be quickly restored through mouse passages. The strains showed variances in their sensitivity to the hemagglutination-inhibiting substances in normal sera. The inhibiting action of human serum was most marked.

187. Germanova, K. I. et al., Antiviral properties of vaccinocidin. Antibiotiki 9 (1964) 11:997-1003.  
(From the Department of Experimental Therapy of the All-Soviet SR Institute of Antibiotics, Moscow.)

The authors found the antibiotic vaccinocidin, previously referred to in these abstracts (see Solov'eva et al., Abstract No. 64, p. III/24), in vitro active against the vaccinia virus. The antibiotic was also found to inhibit the development of the vaccinia and influenza viruses in chick embryos. Nevertheless, the authors doubt the practical usefulness of vaccinocidin because it is not soluble in water. However, a water-soluble salt of it has become recently available.

188. Sobolev, V. R. et al., Rapid determination of the sensitivity of various groups of microorganisms to antibiotics with the aid of phase contrast microscopy. Antibiotiki 9 (1964) 12:1073-1077.  
(From the Department of Microbiology of the Central Institute for the Post-Graduate Training of Physicians, Moscow.)

The authors obtained good results when using the phase microscope for the examination of cultures to which antibiotics had been added in varying concentrations. The species tested included inter alia the STI anthrax strain.

189. Zaitsev, A. A. and Fateeva, Z. S., A study of the sensitivity of the tularemia cultures isolated in the Stavropol Krai to antibiotics. Antibiotiki 9 (1964) 12:1083-1085.  
(From the Sanitary-Epidemiological Station of the Stavropol Krai.)

The authors worked with 73 tularemia strains isolated in the Stavropol Krai during the period from 1947 to 1962. All strains tested were markedly sensitive to levomycetin, chlortetracycline and streptomycin regardless of the source of their origin, type and length of storage and their virulence. However, the strains which had been kept for more than 10 years and the virulence of which had become weakened, proved somewhat more sensitive to the three antibiotics than young and virulent strains.

In the opinion of the authors the insensitivity of tularemia strains to penicillin is a characteristic of potential diagnostic value.

(It is noteworthy that in this as in other recent Soviet publications the Latin name given to the tularemia bacillus is Francisella tularensis.)

190. Akulova, N. S., Peculiarities of the distribution of chlortetracycline in the body of birds experimentally infected with pasteurellosis. Antibiotiki 9 (1964) 12:1094-1096. (From the Antibiotics Laboratory of the All-Soviet Institute of Experimental Veterinary Medicine.)

The author found that the distribution of chlortetracycline in pasteurellosis-infected birds differed from that in normal birds. In the former the concentration of the antibiotic was



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higher in the blood and lower in the tissues than was the case in healthy birds. The concentration of chlortetracycline in the blood was highest in severely infected birds in which only inconsiderable amounts or even only traces of the antibiotic were present in the tissues. This difference was not marked in slightly affected birds.

191. Pil'shchikov, A. A., Observations on the isolation of brucella cultures in chronic brucellosis.  
Sov. med. (1964) 11:130-132.  
(From the Department of Hospital Surgery of the Stavropol Medical Institute and from the Infectious Diseases Hospital of the Kumagorsk Krai.)

In chronic brucellosis with focal affections producing exudates it was found best to use the fluid of the latter for bacteriological examinations.

192. List of noteworthy articles in the book "Prirodnaia ochagovost' boleznei i voprosy parazitologii" (Naturally focal diseases and problems of parasitology). Papers read at the 4th Conference on diseases occurring in natural foci and problems of parasitology of the Kazakhstan and the Central-Asian Republics, held September 15-20, 1959, 3rd issue. Edited by the Academy of Sciences of the Kazakh SSR, Alma-Ata (1961).

- 1) Pavlovskii, E. N., The lore of the naturally focal diseases. On the occasion of its 20 years' existence.  
Pp. 11-19.
- 2) Galuzo, I. G., 20 years study of the naturally focal diseases. (From the Zoological Institute of the Kazakh AS.)  
Pp. 19-30.
- 3) Petrishcheva, R. A., Urgent tasks in the fight against naturally focal disease. (From the N. F. Gamaleja IEM.)  
Pp. 38-48.
- 4) Bibikov, D. I., A contribution to the problem of regularities of the landscape in the natural foci of the Tian-Shan.\*  
(From the Central-Asian SR Anti-Plague Institute.)  
Pp. 49-54.

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- 5) Karpov, S. P. and Kolmakova, A. G., Materials to the nosogeography of tick-borne encephalitis in Western Siberia. (From the Tomsk SR Vaccine and Serum Institute and the Tomsk Medical Institute, MH, RSFSR.) Pp. 55-58.
- 6) Alifanov, V. I. et al., An epizootic of Omsk hemorrhagic fever among musk-rats. (From the Omsk SR IEMH, the Sanitary-Epidemiological Station of the Omsk Oblast and the State Hunting Inspectorate of the Omsk Oblast.) Pp. 59-63.
- 7) Karakulov, I. K. et al., A contribution to the study of Q-fever in the Western zone of the Kazakhstan. (From the Institute of Regional Pathology of the Kazakh AS and the Department of Epidemiology of the Kazakh State MI.) Pp. 64-69.
- 8) Makhmetov, M. M., Natural infection of the ectoparasites of the shore swallow (Riparia riparia) with R. burneti. (From the Gamaleia IEM, AMS, USSR.) Pp. 70-74.
- 9) Imanov, E. D., Q-fever in the domestic animals of Kirghizia. (From the Institute of Zoology and Parasitology of the Kirghiz AS.) Pp. 75-78.
- 10) Kerbabaev, E. V., The most important naturally focal diseases in Turkmenia. (From the Ashkhabad IEM.) Pp. 70-82.
- 11) Rementsova, M. M., Supplementary sources of brucellosis infection. (From the Institute of Regional Pathology of the Kazakh AS.) Pp. 101-105.
- 12) Volkova, A. A. et al., Comparative data on the infection of ticks of the genus Dermacentor with brucellae. (From the Institute of Zoology and Parasitology of the Kirghiz AS.) Pp. 106-107.
- 13) Kolomakin, G. A., Dogs as the means of transition of brucellosis from hares to domestic animals. (From the Laboratory of Veterinary Bacteriology of the Alma-Ata Oblast.) Pp. 108-110.
- 14) Lisitsyn, A. A. and Iakovlev, M. G. Preliminary results and prospects of the anti-rodent campaigns in the Volga-Ural natural plague focus.\* (From the Central-Asian Anti-Plague Institute.) Pp. 116-125.
- 15) Lisitsyn, A. A. et al., Use of airplanes in the fight susliks in the Volga-Ural plague focus.\*

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(From the Central-Asian Anti-Plague Institute and the Ural Anti-Plague Station.) Pp. 126-134.

- 16) Radchenko, A. G. et al., Improvement of the aviation method of the fight against gerbils in the Volga-Ural plague focus. (From the Central-Asian Anti-Plague Institute and the Gur'ev Anti-Plague Station.) Pp. 135-142.
- 17) Akopian, M. M., Registration of susliks with the aid of the trap and route-line methods. (From the Nukus Anti-Plague Station.) Pp. 143-148.
- 18) Kolmakova, A. G. and Fedorov, I. V., Materials to the ecology of Ixodes persulcatus in the forest-type of tick-borne encephalitis foci. (From the Tomsk SR Vaccine and Serum Institute, MI, RSFSR.) Pp. 502-505.
- 19) Kusov, V. N., The ticks of the genus Ornithodorus in Kazakhstan and their epidemiological importance. (From the Zoological Institute of the Kazakh AS.) Pp. 510-518.
- 20) Ershova, L. S., The role of the tick Ornithodorus lahorensis in the preservation and transmission of the tularemia bacillus.\* (From the Central-Asian SR Anti-Plague Institute.) Pp. 525-528.
- 21) Igolkin, N. I., Fleas and gamasides from the nests of small mammals in the foci of tick-borne encephalitis. (From the Tomsk Vaccine and Serum Institute.) Pp. 539-543.
- 22) Sinel'shchikov, V. A., Blood-sucking arthropods as an epidemiological factor in the floodlands of the Irtysh River.\* (From the Sanitary-Epidemiological Station of the Pavlodar Oblast.) Pp. 544-552.
- 23) Netsetskii, A. M., Experience on the use of the aerosol smokepots NBK G-17 for the fight against the tick Hyalomma anatolicum in habitations. (From the Uzbek SR Veterinary Institute.) Pp. 553-557.
- 24) Pil'shchikov, I. N., Chlorofos as an acaricide.\* (From the Kazakh SR Veterinary Institute.) Pp. 558-561.
- 25) Akopian, M. M., A contribution of the problem of the parasitic castration of fleas. (From the Nukus Anti-Plague Station.) Pp. 562-567.

(The articles marked with an asterisk are reviewed below.)

193. Bibikov, D. I., A contribution to the problem of regularities of the landscape in the natural plague foci of the Tian-Shan. Prirodnaia ochagovost' boleznei i vo-prosy parazitologii, Alma-Ata (1961): 49-54.  
(From the Central Asian SR Anti-Plague Institute.)

The author concluded his interesting ecological study by stating that

"The materials collected suggest the accidental nature of the appearance and the short persistence of the epizootic 'point.' At the same time it is evident that plague-infected animals and ectoparasites have been observed in certain locations (urochishchie) with unimpaired marmot populations for decades. Hand in hand with this the persistence with which plague is preserved is lower in some of the microfoci and in them it was not possible to confirm the presence of infected marmots and their ectoparasites for a long time. The absence of objective criteria for the determination of the degree of the persistence of individual microfoci and a whole series of facts confirming the regular character of the shifting of the epizootic 'points' within the territory of the microfoci studied render it indispensable to suppress the frequency of the marmots and fleas profoundly and for prolonged periods within the whole territory of the districts (uchastkie)."

An adequate reference list enhances the value of this article.

194. Lisitsyn, A. A. and Iakovlev, M. G., Preliminary results and prospects of the anti-rodent campaigns in the Volga-Ural natural plague focus. Ibidem, 116-125.  
(From the Central-Asian SR Anti-Plague Institute.)

Evaluating the results of the anti-rodent campaigns in the Volga-Ural plague focus the authors stated that

"the strictly enzootic part of the focus, where possibilities for a prolonged circulation of P. pestis exist, does not exceed 9-10 million hectares in size. From 1933-1938 in this

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territory an eradication of the fundamental plague reservoirs (small susliks and midday gerbils) was effected in areas measuring over 31 million ha. This figure shows that the same areas were repeatedly treated. Still, the frequency with which the individual sections were dealt with were not uniform and some of them were not all treated. Such a territory, measuring about a million hectares, is situated in the center of the sandy areas. At the same time at the periphery of the Volga-Ural sandy areas anti-rodent campaigns were conducted in some localities for 5-10 successive years. This increased frequency of the work was justified in order to protect comparatively densely populated territories against an importation of plague from adjacent districts of the focus active at the time. Now, when the fundamental part of the active focus has been brought under control through the eradication work, its completion does not require such repeated treatments."

The authors expressed the hope that it would be possible to complete four times repeated anti-rodent campaigns in the whole territory of the Volga-Ural sandy areas by 1965.

A long reference list is added to this instructive article.

195. Lisitsyn, A. A. et al., Use of airplanes in the fight against susliks in the Volga-Ural plague focus.  
Ibidem, 126-134. (From the Central-Asian Anti-Plague Institute and the Ural Anti-Plague Station.)

Having used the method of poison-bait distribution from airplanes in an area of 1,360,303 hectares, the authors recommended the following scheme for this work:

<u>Population Density</u> <u>of the</u> <u>Susliks per Hectare</u>	<u>Grams of Bait</u> <u>per Hectare</u>	<u>Intervals Between</u> <u>the Flights</u> <u>(in Meters)</u>
10	500	50
11-20	630	40
21-40	830	30
41 or more	1,250	20

196. Ershova, L. S., The role of the tick Ornithodoros lahorensis in the preservation and transmission of the tularemia bacillus. Ibidem, 525-528.  
(From the Central-Asian SR Anti-Plague Institute.)

The conclusions reached by the author of this article were that

- "1. The ticks of the species O. lahorensis in all stages of their development easily ingest tularemia bacilli when feeding upon infected animals.
  2. In the process of metamorphosis of the ticks it comes to a transmission of the organisms from stage to stage....
  3. The ticks of all active stages are capable of transmitting through their bite the tularemia bacilli to healthy animals, causing illness and death in the latter.
  4. The male and female ticks of the species O. lahorensis and also the larvae and nymphs of all ages are capable of preserving B. tularensis in their body throughout their life.
- The maximal period of survival of B. tularensis in adult ticks was found to equal 943 days (limit of observation).
5. During the process of metamorphosis it comes in the ticks to a multiplication of the bacilli. As a rule the number of organisms increases hand in hand with the development of the ticks from the larval stage to the adult stage.
  6. The coxal fluid may contain tularemia bacilli.
  7. The tularemia cultures isolated during the process of metamorphosis of the ticks and after prolonged survival in them did not differ in their cultural and morphological properties and in their virulence from the parental strains."

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197. Sinel'shchikov, V. A., Blood-sucking arthropods as an epidemiological factor in the floodlands of the Irtysh River. Ibidem, 544-552.  
(From the Sanitary-Epidemiological Station of the Pavlodar Oblast.)

As summarized in this compilation, blood-sucking arthropods are the potential reservoirs and vectors of various infectious diseases. Thus, besides fleas, ticks (Derma-centor marginatus and Ixodes crenulatus) may play a role in plague, flies and horse-flies in anthrax, D. marginatus in hemorrhagic fever and Q-fever, various gamasides in infectious nephroso-nephritis.

The author emphasizes in particular the role of the tick D. marginatus, capable of transmitting to man and animals tularemia, brucellosis, tick-borne typhus, Q-fever and hemorrhagic fever. It is capable of harboring P. pestis for 33 days. Moreover, these ticks play an important role in the transmission of the causative organisms of various animal diseases.

198. Pil'shenikov, I. N., Chlorofos as an acaricide. Ibidem, 558-561. (From the Kazakh SR Veterinary Institute.)

The author found that chlorofos was endowed with acaricidal properties and exerted for 13 days a residual action on the ticks in all stages of development. It was harmless for animals as well as for milk and milk products. Chlorofos appeared preferable to DDT or other acaricides.

199. Reviews of noteworthy articles in the report "Mikrobiologiya i immunologiya osobo opasnykh infektsii. Sbornik nauchnykh rabot protivochumnykh uchenykh strany (Microbiology and immunology of specially dangerous infections. Collection of scientific papers of the anti-plague organizations of the country). Edited by N. I. Nikolaev, Saratov "Mikrob" Institute (1964).

Plague

- 1) Klassovskii, L. N. (Alma-Ata): Observations on the biological mechanism of the process of lowering of the immunity of P. pestis in the course of serial subcultivations on solid media. Pp. 3-9.

The author worked with the initially highly virulent plague strain 1435 (DLM for guinea-pigs: 100 organisms; for white mice: 10 organisms) which had been isolated in 1955 from a marmot in the Tian-Shan. Subcultures on agar plates were made thrice weekly and incubated at 28°C. To test the virulence of the growths from time to time, white mice were infected subcutaneously with 100,000 organisms - a dosage which the author considered preferable to that of 10,000 organisms used by Wessman et al. (J. Bact. 76, 1958, 4: 368).

The conclusion reached by the author was that

"in the course of serial subcultivation of a virulent plague strain there begin to accumulate in the bacterial population avirulent organisms, the appearance of which takes place according to the type of adaptive mutation. The intensity of the adaptive process is directly related to the degree of the exhaustion of the nutritive medium and its contamination with the metabolic products of the growing culture. In the first line it comes to a loss of virulence in the bacteria possessing a most marked ability for adaptation. The appearance of avirulent organisms is promoted by the crowding out of the virulent organisms from the bacterial population as a result of the direct preference of the avirulent organisms for growth on agar or as a result of a more complicated process of interrelation between the avirulent and virulent organisms. The content in avirulent organisms increases with progressive rapidity because their accumulation results not only from the accumulation of new avirulent cells but also from the elimination of forms possessing the original virulence. Cultivation of the organisms in a discontinuous manner (in the form of rarely isolated colonies) lowers the intensity of the adaptive process and restrains the action of the selective factors, considerably retards the process of the transition of the virulent population into the avirulent state, but does not terminate this process."

- 2) Malinina, Z. E. et al. (Saratov, Gur'ev): A study of the virulence of the plague bacillus and the production of



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live anti-plague vaccines. Report II. A study of the cell composition of avirulent plague strains of different origin. Pp. 9-13.

The conclusions reached by the authors of this article were that

"1. The cell composition of the microbial populations of the highly virulent standard plague strains is not uniform, the single colonies of one and the same strain differing in regard to their virulence, their immunogenic and their fermentative activity.

Most stable and uniform in their virulence are the strains of rat and marmot origin, both when freshly isolated and when long kept on nutritive media. A freshly isolated gerbil strain was less stable and uniform in its cell composition. When this strain was kept on nutrient media without subcultivation, the number of organisms with a markedly lowered virulence increased from year to year.

2. Out of the virulent plague strains belonging to the continental race, single colonies could be obtained which were incapable of utilizing glycerol. From the strain 363 (a marmot strain isolated in 1959) two glycerol-negative variants were obtained, from the strain 380 (a gerbil strain isolated in the same year) one; the latter proved unstable.

3. It was impossible to establish a strict interrelation between the virulence of the strains and the capability of their colonies to acidify rhamnose and glycerol. Strains which attacked rhamnose but not acidifying glycerol showed a high virulence.

4. The stability of all fundamental properties of the standard plague strains, and in the first line that of their virulence, depends to a large degree upon the nature of the strains, i.e., upon their original source."

- 3) Chrustselevskaia, N. M. et al. (Alma-Ata): The change of the virulence of P. pestis in the organisms of the fleas. Pp. 14-18.

The author concluded that

- "1. An experimental study of the mutability of P. pestis in the fleas Xenopsylla minax and Ctenophthalmus dolichus rendered it possible to obtain cultures with a markedly lowered virulence. Such changes in virulence could be brought about by specific species-conditioned peculiarities of the body of the fleas, by the localization of the plague bacilli and by the conditions under which the fleas were kept.
  2. The lost properties of the above mentioned strains could be restored with the aid of passages through pregnant guinea-pigs and fleas which are known to be highly susceptible to plague. Such subcultures can produce a generalized infection in susceptible animals on the one hand, a vector-borne infection on the other hand.
  3. It may be postulated that the conditions created in our experiments were also present in nature. As a consequence the mutation of P. pestis observed by us may also take place in nature and may lead to a change of epizootic situation."
- 4) Druzhinina, I. P. (Saratov): A study of the virulence and other properties of dry plague cultures. Pp. 18-19.
- The author of this note worked with 4 plague strains, two of which had been isolated from gerbils in Turkmenia and one from a R. norvegicus in India and from a marmot in Kirghizia, respectively. When these strains were kept in a lyophilized condition for 18-30 months, their virulence became markedly lowered. In contrast to the Turkmenian strains, the strain isolated in India remained more virulent when kept for three years without subcultivation on agar slants than when kept in the lyophilized state. The marmot strain from Kirghizia retained its virulence both in this state and when kept on agar.
- 5) Kuraev, I. I. (Saratov): Observations on the mutability of P. pestis in vaccinated and nonimmunized camels. Pp. 20-25.

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As a result of his studies, the numerous protocols of which must be consulted in the original text, the author came to the conclusion that

"all plague cultures isolated from vaccinated as well as from nonimmunized camels were in different stages of mutation. In some of the subcultures the colonies were more knobby than usual and showed no peripheral zone or they were less pigmented with a well marked peripheral zone. A majority (87.5%) of the subcultures reduced methylene-blue. Some of them reduced nitrates to nitrites, fermented maltose when grown in Gimmelfarb's medium (0.5% peptone-water containing 0.5%-1% maltose with methylene-red as indicator) and produced a late lactose fermentation.

In four of the subcultures under study one could observe a considerable lowering of the virulence, in both cases of the vaccinated and the nonimmunized camels.

The acquired properties of the subcultures proved stable when the latter were subjected to transfers in the course of four years."

- 6) Martinevskii, I. L. (Alma-Ata): A contribution to the problem of the nature of the bacterial strains isolated from voles in the mountainous part of Transcaucasia. Pp. 26-27.

The author examined 4 strains isolated in 1958 from voles in the mountainous part of Transcaucasia, one strain each from Microtus socialis (in Dagestan) and M. brandti (in Transbaikalia) as well as 28 strains from fundamental plague carriers in all the natural foci. He concluded that the first mentioned four strains were not those of P. pestis, as claimed by Levi et al. (see Abstract No. 87, p. II/55) but belonged to a pasteurella which had called P. microticida.

- 7) Tumanskii, V. M. et al. (Saratov, Stavropol): A contribution to the characterization of the plague strains isolated in Armenia. Pp. 28-32.

Postulating that the 12 Armenian plague-strains isolated in 1958 from small rodents and re-examined by

them belonged to the marmot variety of P. pestis, the authors added the following interesting comment:

"Considering the peculiarities of the strains examined by us (marmot variety) one may postulate that the fundamental reservoirs of P. pestis in this focus for many centuries were the marmots which, according to N.K.Vershchagin (1957) still existed in the Caucasus and in Transcaucasia during the last century. After their extinction the susliks of Asia minor apparently became the reservoir of P. pestis; these rodents are met with in almost all raions of north-west Armenia, but recently only spotwise. However, only a small part of the habitat of these susliks is situated in north-west Armenia, the southern and western parts of its areale being situated far away in the territory of Turkey, where also the major part of this ancient plague focus is situated.

The small mouse-like rodents, especially the voles and the domestic mice, among which the 1958 epizootic took place, cannot form the plague reservoir for a long time, because their frequency is subjected to marked oscillations (Dal, 1954). They can become involved in the epizootics during the years of their high frequency but become free from plague whenever their frequency becomes lowered and reaches a minimum."

- 8) Sokolova, N. M. (Saratov): Mutability of P. pestis in experimentally infected animals. Pp. 32-34.

The findings recorded in this note must be studied in the original or in a translation.

- 9) Dobrokhotova, N. D. et al. (Uralsk): Results of the experimental infection of the small susliks with P. pestis of the rat variety. Pp. 34-37.

The conclusions reached in this article were that

"1. The passage of glycerol-negative plague strain 751 through 54 small susliks did not produce a change in the biological properties of the strain.

2. In part of the animals infected with this strain before and during hibernation, the organisms persisted until spring and after their awakening one could observe in them a general infectious process with bacteremia.

3. These results of infection of small susliks with a plague strain of the rat variety do not support the hypothesis of Levi,\* who proposed to classify the strains according to the intensity of the bacteremia (produced by them)."

- 10) Malinina, Z. E. (Saratov): Methodological factors influencing the virulence of P. pestis in the experimental infection of animals. Pp. 42-44.

Summarizing the results of her observations, the author stated

"that the virulence of the cultures of the various plague strains which have been well titrated and are widely used as standard strains in actual practice, is an inconstant quantity. It undergoes changes not only in the different strains but also in the subcultures of one generation of individual strains depending on the volume of the fluid in which the bacteria are administered to the animals as well as upon the age and the incubation temperature of the cultures.

Most favorable for the demonstration of the virulence of E. pestis in white mice was a temperature of 20°C in comparison to those of 28°C and 37°C. Young, 12-hour old organisms in the phase of logarithmic growth produce a higher percentage of mortality in white mice. A reduction of the volume of the fluid used for the infection of the animals also favors a manifestation of the virulent properties of the strains. Inasmuch as the virulence of the cultures is a labile system, it would be advisable to unify

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\* Levi, M. I., Methodological foundations of the study of the biological properties of P. pestis. Tezisy dokladov nauchnoi konferentsii Rostovsk. n.-issled. instituta, 7-9 iulia 1960 g.

the methodology of determining the minimal lethal doses of the plague strains. Doing so it is indispensable to ascertain not only the infectious sensitivity of the organisms under test but also the status of the strains and the conditions favoring the manifestation of their virulence."

- 11) Orlova, G. M. and Levi, M. I. (Rostov-Don): Serological investigations in plague. Report XVIII. Distribution of the Fraction I antigen in the various fractions of P. pestis. Pp. 123-125.

The authors of this important note stated that, as shown by the method of gel-precipitation, all fractions of the plague bacillus obtained according to the method of Baker et al. (J. Immunolog. 68, 1952, 2: 131) as well as the residual fluid contained the Fraction I. Their object was to establish with the aid of serological methods how this fraction was distributed in the other fractions obtained according to the above mentioned method. They resorted for this purpose to a method of fractionation described in an article by Levi and Momot (Sbornik nauchnykh rabot Elistinskoi protivochumnoi stantsii 1961, 2:111-121) which so far could not be consulted by the present reviewer. The material under test comprised the substances obtained through fractionation of 10 plague strains. Tested were the dry bacterial mass, the water-salt extract, the Fractions 0.2, IA, IB, II and the residual fluid remaining after the extraction of Fraction II - all obtained in dry form after dialysis. The amounts of the Fraction I antigen in the various fractions was determined with the aid of the antibody neutralization reaction (Levi and Momot, 1961).

Before titration, all substances under test were dissolved in normal saline (pH 7.2) to a concentration of 1,000 microgram per ml, put into penicillinized flasks which were shaken for one hour; then formol was added to a concentration of 1% and the flasks were put into the refrigerator. On the following day the flasks were again shaken for one hour and their contents were titrated. The dilutions thus obtained could be kept in the refrigerator for some weeks without loss of their neutralizing power. The tests were made under standardized conditions briefly described by the authors.

As can be gathered from a table showing the absolute weight of the minimal neutralizing dose (MND) of

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each fraction of every strain under test, the absolute sizes of the MND of the different strains varied within comparatively narrow limits with the exception of the strain 1230 which was characterized by a somewhat lower weight of the MND.

It is interesting to note that the minimal neutralizing doses for Fractions IA and IB of one and the same strain had a uniform absolute weight, the Fraction II had 0.002-0.003 microgram more. The water-salt extract of 5 strains (1256, 1229, 1230, 1260, 1204) had a MND of a higher weight than the Fraction I, but not more than twice the weight. In four of the strains (1254, 1217, 1213, 1252) the MND was even less than that of Fraction I.

As the table also shows, the Fraction 0.2 and the residual fluid after the extraction of Fraction II contained small quantities of MND. Fraction IB contained 3-5 times less MND than Fraction IA and Fraction II, and the water-salt extract and the bacterial mass many more doses.

The author concluded their note by stating that

"A study of the distribution of Fraction I in the other fractions showed that in the process of fractionation there is a great loss of the neutralizing activity. Fractions I and II show little differences in their neutralizing activity; Fraction II is much weaker and all fractions taken together possess sometimes a lower neutralizing activity than the water-salt extract or the bacterial mass. On the other hand, the sizes of the absolute weight of the MND of the extract and the Fraction IA are equal or differ very little, notwithstanding that the Fraction IA had been obtained through repeated precipitations and is a fairly purified preparation, while the extract contains many other substances besides this fraction. This paradoxical phenomenon could be explained by the assumption that the Fraction I is contained in the extract in another lighter (weighing less) form."

- 12) Levi, M. I. et al. (Rostov-Don): Determination of Fraction I in different plague strains. Pp. 125-127.

The authors examined 210 plague strains kept in the Rostov-on-Don Anti-Plague Institute for periods ranging from

one month to twenty-three years. The strains were grown for 72 hours at 37°C on Hottinger's agar. Then the growths were washed off with normal saline so as to obtain suspensions containing 10 million organisms per ml, from which serial dilutions were made. To each of these diluted suspensions 2 units of plague agglutinating serum (usually corresponding to a serum dilution of 1:150,000) were added and the mixtures were kept for one hour at 37°C. Afterwards to each tube one drop of a 2.5% suspension of formalized sheep erythrocytes sensitized with the capsular antigen of P. pestis was added and the reactions were read after three to four hours. The minimal neutralizing dose (MND) was considered equal to the minimal amount of bacteria which neutralized two serum units so that the sensitized erythrocytes did not become agglutinated.

Details of this method have been described by Mironov, Levi et al. in: (A. K. Shishkin, Editor) Kratkoe rukovodstvo po epizootologicheskomu obsledovaniyu v prirodnom ochage chumy Severo-Zapadnogo Prikaspiia (Brief manual on the epizootiological investigations in the natural plague focus in North-West Pre-Caspia), Rostov-Don, 1962.

Out of the 210 strains 6 showed no neutralizing activity while the MND of 78% varied from 80,000 to 320,000 organisms. Two of the 6 negative strains were found to be virulent. On the other hand some of the strains containing the usual amounts of Fraction I proved to be avirulent.

- 13) Levi, M. I. and Kasatkin, N. F. (Rostov-Don): A modification of the agar medium of Higuchi and Smith for a study of the cell composition of plague strains. Pp. 44-50.

As described in this article, the technical details and protocols of which must be studied in the original, the authors obtained good results when using a meat-peptone agar medium containing 2% defibrinated rabbit blood prepared according to the method of Higuchi and Smith (J. Bact. 81, 1961, 4: 605) for studies on the cell composition of plague strains. An investigation of 59 strains made with the aid of the modified medium of Higuchi and Smith showed

"that the stability of the cell composition of plague strains depended upon the variety to which they belonged and the length of their preservation on artificial nutrient media. The least stability was shown by the strains of the gerbil variety in which one could observe



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already two months after isolation single organisms growing on the salt-blood agar. The greatest stability of their cell composition during storage on artificial media was shown by the strains of the marmot and vole varieties."

- 14) Akimovich, V. V. and Ponomarev, N. G. (Saratov): The use of the medium of Higuchi-Smith for some characterizations of the vaccinal strains of P. pestis. Pp. 50-54.

As set forth by the authors of this well documented article, the use of the Higuchi-Smith medium proved as valuable for a demonstration of dissociation in the vaccinal plague strains as was the case in working with virulent strains.

- 15) Klassovskii, L. N. (Alma-Ata): A contribution to the methodology of determining the streptomycin-fastness of P. pestis in vitro. Pp. 55-61.

The conclusions reached by the author of this article, the text of which does not lend itself to the purpose of a brief review, were that

"The reaction of P. pestis to the presence of streptomycin in the nutrient media is of a varying character, depending on the one side on the level of the resistance of the organism to the antibiotic, on the other side on the degree of their dependence upon the antibiotic. The dependence of the organisms is of a relative character and, therefore, is not manifest if comparatively large doses are used for cultivation.

One of the possible methods of obtaining a quantitative characterization of these properties in the case of the different strains and variants of the plague bacillus is a determination of the concentration of the antibiotic inhibiting the growth of 50% of the viable organisms (LD<sub>50</sub>). In this case the streptomycin-independent variants have one LD<sub>50</sub>, showing the degree of the fastness of the organisms against the antibiotic. In the case of the streptomycin-dependent strains one may obtain two LD<sub>50</sub> indices, the larger of which characterizes the

level of resistance of the organisms to the antibiotic and the lesser the degree of their dependence upon the antibiotic."

The author claimed that it might be possible to use his method for a statistical evaluation of the differences shown by the strains and variants of P. pestis in their behavior towards streptomycin.

- 16) Tkachenko, V. V. (Irkutsk): The hemolytic properties of washed plague cultures. Pp. 61-67.

Commenting upon his findings, the author stated that

"Inasmuch as hemolysis is produced not only by growing but also by washed aerated plague cultures, it is difficult to postulate that this process is caused by metabolites of the bacteria, as suggested by Gubarev and Ivanovskii (Biokhimiia chumnogo mikroba - Biochemistry of P. pestis - Medgiz, Moscow, 1958).

In its nature the hemolysin of P. pestis differs from the O and S streptolysins, the alpha-toxin of B. perfringens and the alpha-hemolysin of the staphylococcus. Against a fermentative nature of the plague hemolysin speak its high thermostability, its preservation at high temperatures and the absence of an influence of the H-ions on its activity. Apparently the lysis of the erythrocytes is caused by products of the decay of the plague bacilli. The mechanism of action of these products will be dealt with in a future publication."

- 17) Korobkova, E. I. (Saratov): The concept of the "residual" virulence of the vaccinal plague strains. Pp. 102-107.

Concluding her article, the text or a translation of it must be studied by those interested in its subject, the author stated that

"It is possible to postulate that the virulence antigen of P. pestis is preserved also in the apathogenic vaccinal strains. The presence of this antigen determines the properties of the strains: their ability to multiply and persist

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in the body, to react with its cells, producing a series of specific reactive changes which characterize the vaccinal process.

The leading factor in the production of anti-plague immunity is not the somatic O antigen but the Vi-antigen (equivalent to the VW antigens) which is wrongly designated as the 'residual' virulence. The concept of the 'residual virulence' cannot be reconciled with the ideas on the vaccinal plague strains and their innocuousness.

Determining the 'residual' virulence of the vaccinal plague strains as a special antigen which increases the immunogenicity of the strains (Vi or VW antigens) one must emphasize that this antigen is not connected with the pathogenicity of the strains, inasmuch as its presence does not condition their virulence."

- 18) Korobkova, E. I. and Pavlova, L. P. (Saratov): Approval of the dry live anti-plague vaccines according to their ability to afford protection against pneumonic plague. Pp. 107-112.

The conclusions to this article were that

- "1. Intranasal infection with a virulent plague culture produces in guinea-pigs pneumonic plague with a primary multiplication of the organisms in the deep parts of the respiratory tract and secondary bacteremia.
2. There exists no complete parallelism between the content of the vaccine in live organisms and its immunogenic properties.
3. Subcutaneous vaccination confers an immunity against pneumonic plague infection but a more active immunizatory action is necessary than in the prevention of subcutaneous infection.
4. A large part of the tested vaccine series produces an intense immunity to subcutaneous infection but confers with the same doses only a weak protection against nasal infection. The immunogenicity of the series may be increased by an increase of the vaccine dosage or by the use of two vaccine doses.

5. It is important, practically, to use for the immunological assay of the vaccine series made ready for distribution, both animals infected intranasally and subcutaneously."

- 19) Basova, N. N. et al. (Rostov-Don): Immunological transformation in experimental animals following the introduction of Fraction I of P. pestis. Pp. 127-131.

The conclusions reached in this article, the technical details and protocols of which must be studied in the original or in a translation, were as follows:

"The immunization of laboratory animals with various doses of Fraction I of P. pestis (strain EV-76) adsorbed to aluminium hydroxide led to the production of specific antibodies. As the result of a single administration of the adsorbed antigen, antibodies became manifest in a considerable number of the animals within 4-5 months; the animals reacted to a second immunization. In the sera of the animals which had been immunized 2-3 times, the antibodies to Fraction I reached titers not below those in the animals which had survived 2 experimental plague infections.

It was not possible to observe a complete parallelism of the various antibodies met with in the individual sera.

The passive hemagglutination reaction, performed with Fraction I diagnosticum of the Rostov Anti-Plague Institute, showed the highest sensitivity, specificity and expediency.

As a result of the immunization with Fraction I about 2% of the guinea-pigs and 50% of the white rats became resistant to the infection. Antibodies to Fraction I were observed 7 times more often in the sera of the white rats than in those of the guinea-pigs.

It deserves attention that one could observe in the sera of the immunized animals, including

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the standard agglutinating sera, incomplete agglutinins as well as antibodies inhibiting the complement fixation test."

- 20) Kanchukh, A. A. et al. (Rostov-Don): A study of live anti-plague vaccine manufactured with media containing maize extract. Pp. 131-137.

As described in this well documented article, the use of solid media containing 2% maize extract proved fully satisfactory for the manufacture of live plague vaccines.

- 21) Samoilova, L. V. (Saratov): The passive hemagglutination reaction with the sera of white mice and guinea-pigs infected with plague or vaccinated against it. Pp. 137-140.

Making hemagglutination tests with the sera of white mice and guinea-pigs according to the method of Landi and Trapani (Amer. J. Hyg., 59, 1954, 2) as modified by Levi and associates (1961), the author reached the following conclusions:

- "1. The Fraction IA of P. pestis cannot be demonstrated with the aid of the passive hemagglutination reaction in the sera of normal white mice and guinea-pigs.
2. In a few of the mice which had been immunized with EV vaccine, specific antibodies were found on the 9th, 16th and 21st day after vaccination at a titer of 1:40. In the sera of a few of the vaccinated guinea-pigs antibodies were observed 10-58 days after immunization at low titers (1:40, 1:320).
3. The rare occurrence of antibodies in the sera of the vaccinated animals and their low titers give reason to assume that these antibodies play apparently a secondary role in the protection of the body against plague infection.
4. In the sera of guinea-pigs surviving plague infection antibodies were found, not rarely, at higher titers, but were not constantly present. Therefore the passive hemagglutination test is only of relative value in demonstrating an immunity against plague."

- 22) Bakhrakh, E. E. et al. (Saratov): The hemagglutination reaction with a hapten of P. pestis as an index of immunogenicity. Fp. 140-144.

The object of the authors was to determine the value of the hemagglutination reaction with the specific hapten of P. pestis, obtained with the aid of the technique outlined below, for an assessment of the immunogenicity of the strains. This reaction which had been proposed by some Soviet authors for the identification of bacterial strains, including those of plague and cholera, was used in the modification of Sokolov (1945). The technique of the test was thus described by the present authors:

"To 1 ml of a suspension of plague bacilli in normal saline, containing 10 billion organisms, were added 4 ml of distilled water and 0.05 ml (1-2 drops) of a saturated solution of caustic sodium. The mixture was brought to boiling under shaking. This process led to a breakage of the organisms, the specific hapten going into solution.

After cooling of the tube 2 drops of a 0.5% solution of rosolic acid were added and the excess of alkalinity was neutralized by adding drop-by-drop glacial acetic acid until the rose color of the fluid disappeared. The excess acetic acid was neutralized with a 10% solution of sodium carbonate until a stable bright rosy color appeared (= pH 7.4-7.8). The hapten was brought to a volume of 10 ml with distilled water, one ml of the fluid thus containing 1 billion organisms. Further dilutions were made with normal saline containing respectively 100, 50, 25, 10 and 1 million organisms.

To 10 ml amounts of the different hapten concentrations were added 0.2 ml amounts of a 10% suspension of thrice washed sheep erythrocytes. The mixtures were gently shaken for 1-2 minutes and left standing at room temperature for 25-30 minutes, then centrifugated at a speed of 1,500-2,000 revolutions per minute for 5-7 minutes. The supernatant was discarded and the sediment suspended in 0.1-0.2 ml normal saline.

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One drop of the suspension of the "loaded" erythrocytes and 2 drops of plague diagnostic serum were mixed on a well cleaned and dried slide with the aid of a glass rod and by gently shaking the slide. In the case of a positive reaction agglutination of the erythrocytes took place within 1-2 minutes."

The agglutinating serum used in these tests had been obtained from the Saratov "Mikrob" Institute. Heterogenous hemagglutinins were removed from it thus: to 5 ml of serum was added 0.5 ml of a thrice washed suspension of sheep erythrocytes. The mixture was first kept for 2 hours at 37°C and then for 16-18 hours at 4-5°C. The clear serum was then decanted and used for the tests.

The conclusions of the authors were that

"1. It has been shown that the immunogenic variants derived from virulent plague strains remain to a considerable degree active in respect to hemagglutination with a hapten produced from the strains in question according to the method of Kravchenko-Sokolov. On the contrary, in the case of the nonimmunogenic variants derived from the virulent strain 708 and the vaccinal EV strain one could note a considerable lowering of the activity of said reaction.

2. The hemagglutination reaction with the hapten testifies to the presence in plague cultures of specific somatic complexes which play an important role in the creation of an immunity against this infection. The reaction can be recommended as one of the tests determining the immunogenicity of a given strain in vitro."

### References

1. Kravchenko, A. T., Zh. mikrobiol. (1947) 2: 25.
2. Sokolov, M. I., Ibidem (1945) 4/5: 56.

- 23) Korobkov, G. G. et al. (Irkutsk): A study of the completeness of the phagocytic reaction in the process of anti-plague immunization. Pp. 144-149.

Commenting upon their findings, the authors stated the following:

"The role of the phagocytes of the spleen and liver materially differs from that of the blood leucocytes and of the cells of the subcutaneous tissue. The latter first receive the "shock" of the cutaneous and subcutaneous invasion of the microbes, whereas the liver and spleen cells became involved only after the generalization of the infectious process.

During the first phase of the infectious process the completeness of the phagocytic reaction is not the main indicator of the protective reaction of the body because the leucocytes with a completed or incomplete phagocytosis form an exudate and retain the organisms in their envelope for two to three hours, during which a barrier begins to form in the connective tissue; in the case of the liver and spleen cells a bacteriostatic effect is the fundamental form of participation of these organs in the phagocytic reaction.

In the process of immunization, developing after vaccination with avirulent plague strains, apparently an important role is played by the bacteriostatic effect, as a result of which the organisms taken up by the cells of the spleen remain alive but do not multiply; this is proved by the absence of multiplying organisms in the spleen cells on the 25th day after vaccination, even though in 40% of the cases at that time the phagocytosis in the spleen cells is incomplete."

- 24) Korobkov, G. G. and Borsuk, G. I. (Irkutsk): The phagocytic reaction of the blood leucocytes as an indicator of the immunity against plague. Pp. 149-150.

The authors of this note, the contents of which cannot be condensed for the purposes of a brief review,



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came to the conclusion that with the aid of the phagocytosis reaction with a vaccinal plague strain according to the method of Berman and Slavskaja it was possible to determine the presence of an immunity against plague in white mice.

Details of the method of Bernard and Slavskaja (1959) will be found in the above reviewed article by Korobkov and associates (see No. 23, p. 161).

- 25) Denisova, E. P. (Saratov): An intracutaneous allergic reaction with thermostable extracts of P. pestis. Pp. 150-154.

The conclusions reached by the author of this article, the technical details of which must be studied in the original, were that

"1. The thermostable antigens (of P. pestis) administered intradermally, are capable of indicating an allergic transformation of the body of immune or immunized guinea-pigs which react with a local inflammatory process. Non-immune animals give a negative reaction.

2. The intradermal test, performed on 25 volunteers, gave a positive result in all systematically vaccinated individuals; the reactions were less marked in persons receiving one or two vaccinations. A negative reaction was present in persons who had never been vaccinated, a weak reaction in individuals immunized long ago.

3. Candle filtration and drying render the allergen stable, practically without lowering its activity.

4. No relation could be established between the virulence and the allergenic properties of P. pestis."

- 26) Kanchukh, A. A. et al. (Rostov-Don): The antigenic structure of live anti-plague vaccines grown on media prepared with maize extract. Brief report. Pp. 154-155.

Summarizing the results of their observations, the authors stated that, as shown by gel-precipitation tests,

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the antigenic structure of vaccines prepared by cultivation on media prepared with maize extract did not qualitatively differ from that of the routinely prepared vaccine series.

- 27) Konstantinova, N. S. et al. (Saratov): An experimental study of the efficacy of combined immunization with live vaccines against plague, tularemia, brucellosis and smallpox. Pp. 155-162.

Carefully conducted experiments led the authors to the conclusion that it was possible to combine immunization against plague, tularemia, brucellosis and smallpox. Further studies of this method, including tests on volunteers, appeared therefore to be indicated.

- 28) Malinina, Z. E. and Iurgina, Z. A. (Saratov): The therapeutic efficacy of out-dated streptomycin salts in experimental plague. Pp. 178-181.

The authors concluded that

1. Streptomycin, stored for 3-9 years in the crystalline state under ordinary conditions is endowed with highly therapeutic properties, protecting and curing guinea-pigs and white mice infected with massive doses of P. pestis.

2. In vitro observations showed a marked biological activity of streptomycin series labelled as no longer fit for use.

3. It seems possible therefore to use such lots for the treatment of plague after their activity has been confirmed through in vitro tests.

- 29) Dzhaparidze, M. N. and Rykshina, N. A. (Saratov): A study of the process of transamination in white mice under the influence of plague toxin with the aid of the introduction of C<sup>14</sup> acetate. Pp. 182-184.
- 30) Dzhaparidze, M. N. et al. (Saratov): The influence of plague toxin on the oxidation of the keto-acids in the body of susceptible animals. Pp. 184-188.
- 31) Osipenko, I. I. (Irkutsk): Contribution to the pathomorphological characterization of the action of the plague toxin in the animal body. Pp. 189-192.

These three articles can be quoted by title only.

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- 32) Vashchenok, G. I. (Leningrad): Instances of plague in camels in the Pre-Aral Karakums. Pp. 193-195.

The author describes two instances of plague infection among camels occurring in 1959 and 1961, respectively, at the time of gerbil epizootics.

- 33) Isupov, I. V. and Golubeva, V. K. (Saratov): Morphological changes in the body of guinea-pigs under the influence of chlortetracycline, oxytetracycline and streptomycin. Pp. 195-198.

In the conclusions to this well documented article the authors stated that

"Oxytetracycline and chlortetracycline in daily doses of 9-15 mg proved to be toxic for guinea-pigs, causing the death of the animals 5-9 days after introduction of these drugs.

Smaller daily doses (3 mg) led to the death of the animals after longer intervals--23-30 days. The use of oxytetracycline and chlortetracycline in combination with streptomycin did not enhance the toxic action of the two first mentioned drugs.

As shown by an analysis of the morphological changes in the guinea-pigs treated with the antibiotics, most marked were vascular disturbances consisting of hyperemia and foci of hemorrhages. Most often these changes were observed in the substance of the brain and in the lungs. Moreover, one could observe in the overwhelming majority of the guinea-pigs a marked widening of the pericellular and perivascular zones of the brain and a neuronophagia. Occasionally one could note a proliferation of the endothelial cells in the small vessels.

Quite regularly morphological changes could be observed also in the liver, consisting of marked congestion and of a granular dystrophy and necrosis of the liver cells (especially in the center of the lobules). Moreover, the presence of differently sized lymphocytic infiltrates could be noted in many instances.

The morphological changes in the other organs were less constant and marked."

The authors added that the above described changes were more frequent and marked in the animals dosed with oxy-tetracycline than in those medicated with chlortetracycline.

- 34) Akimovich, V. V. et al. (Saratov): Identification of P. pestis and observation of the plague antigen in the organs of experimental animals with the aid of specific agar precipitation tests. Pp. 221-224.

In the conclusions to this article the authors stated that

- "1. For the identification of plague bacilli in pure culture one uses the precipitation reaction in standard agar plates in a parallel manner with two quantities of the organisms under test (1 and 0.5 billion) and with two concentrations of anti-plague serum (1/4 and 1/8). Final readings of the results are made after 20 hours.
2. It is possible to observe the plague antigen in the organs of experimental animals with the aid of the precipitation reaction in standard agar plates. As test objects serve ground-up tissues of the spleen, the lymph nodes and from the site of infection. Undiluted anti-plague serum is used and the results are read after 16-20 hours. The outcome of the precipitation reaction remains unchanged when the organs of putrefied carcasses are examined."

- 35) Tumanskii, V. M. and Kniazeva, V. A. (Saratov): Observations on the diagnostic value of the plague bacteriophage and the possibility of enhancing the specificity of the phenomenon of bacteriophagy. Pp. 224-226.

The authors concluded their note by stating that

"On account of an analysis of the statements in the literature dealing with the specificity of the plague bacteriophage and our own observations we may conclude that the plague bacteriophage is endowed with a marked specificity and does not lyse other bacterial species, including its congener, the pseudotuberculosis bacillus in its main (S-variant). A small percentage of

pseudotuberculosis strains of the R-variant is lysed by the plague bacteriophage but this should not impede the use of the plague bacteriophage for the diagnosis of this infection. To lower the tendency of the plague bacteriophage to lyse some pseudotuberculosis strains we propose for plague diagnosis a diluted phage (10-1,000 times) and to read the result of the tests after various intervals, beginning after two a half hour to three hours."

- 36) Levi, M. I. et al. (Rostov-Don): Use of the antibody neutralization test for the examination of the carcasses of rodents succumbed to plague. Pp. 226-230.

Concluding their article the authors stated that

- "1. It is possible to examine the putrefied carcasses of plague-affected animals with the aid of the antibody neutralization test. During a period of 18 days (limit of observation) after death of the animals and storage of their carcasses at room temperature one could not note a regularly occurring lowering of the activity of the antigen in antibody neutralization tests. With the aid of bacteriological and biological methods (animal experiments) plague bacilli could be isolated only during the first 7 days after death of the animals.
2. If the tissue suspensions are treated with formol and by heating and filtration, non-specific agglomerations of the erythrocytes in the antibody neutralization tests could be reduced to a minimum, while the activity of the suspensions was not impaired.
3. An examination of organ suspensions from 132 carcasses of plague-affected animals belonging to various species showed that the activity of the suspensions from guinea-pigs and white rats was much below that of the suspensions from white mice, small susliks and midday gerbils from the left Volga shore. Suspensions prepared from the spleens of these animals proved often most active.
4. It is possible to use mummified soft tissues and the bones of the carcasses for the antibody neutralization tests."

The study of this article, which contains a description of the antibody neutralization test recommended by Levi and Momot (1961), in the original or in a translation, is recommended.

- 37) Basova, N. N. et al. (Rostov-Don): Possibilities for the observation of Fraction I of P. pestis and the antibodies against it in the formol-disinfected organs and tissues of immunized or infected animals. Pp. 230-233.

As described in this article, formol in concentrations ranging from 0.2 to 10% could be added to plague-suspect materials to be examined with the aid of antibody neutralization and hemagglutination tests.

- 38) Golkovskii, G. M. and Veinblat, V. I. (Ashkhabad): Use of the passive hemagglutination test for observation of the antibodies in experimentally plague-infected large gerbils. Pp. 234-236.

The authors found that in plague-infected large gerbils positive results could be obtained far more frequently with the hemagglutination test than through bacteriological examinations. The sera of healthy animals as well as of gerbils that had suffered from pseudotuberculosis gave negative results in the hemagglutination tests, but the number of observations made in these respects was too small to judge definitely upon the specificity of the reaction.

Antibodies to Fraction I could be found in plague-infected gerbils and guinea-pigs from the 6th day after infection for a period of two months (limit of observation).

Through the addition of formol the titer of the sheep erythrocytes sensitized with Fraction I could be maintained at a high level for several months.

In spite of these favorable experiences the authors maintained that

"The passive hemagglutination reaction is insufficiently sensitive because it was not always possible to observe (with its aid) antibodies to Fraction I in the sera of large gerbils which had had plague."

- 39) Nikitina, G. P. (Saratov): Observations on a selective medium with boric acid for the isolation of P. pestis from putrefied materials. Pp. 237-238.

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The author of this note was unable to confirm that agar media containing boric acid were suitable for the isolation of P. pestis from contaminated materials, as had been postulated by Dolomanova and Zaplatina (Trudy Rostovsk. n.-i. protivochumn. inst. 15 [1959] 1).

- 40) Trifonova, A. A. and Domaradskii, I. V. (Saratov): Use of the slide haptochol flocculation test for the identification of P. pestis. Pp. 238-240.

The authors claimed that the reaction referred to in the title of their article "was specific to the same degree as any serological reaction used for plague work." No indications are given on how to prepare the haptens needed for the test.

- 41) Somova, N. M. and Gur'ianova, L. I. (Leningrad): Observation of the causative organisms of plague and tularemia in the organs of animals with the aid of luminescent microscopy. Pp. 240-242.

In the concluding paragraph of this article it is stated that the possibility of demonstrating plague and tularemia bacilli in the organs of wild rodents as well as in those of laboratory animals with the aid of luminescent microscopy had been established in principle. However, further work was needed to enhance the specificity of the plague luminescent sera.

- 42) Nikolaev, N. I. et al. (Saratov): A study of the conditions of cultivating the vaccinal strain EV with the aid of the submerged method. Pp. 260-265.
- 43) Bakhrakh, E. E. et al. (Saratov): Influence of buffering of the nutrient media on the growth of P. pestis under aeration. Pp. 266-269.
- 44) Liskina, I. V. (Saratov): Use of the method of methylene-blue reduction for the accelerated determination of the quantity of live bacteria when cultivating P. pestis with the submerged method in a reactor. Pp. 269-274.
- 45) Bystryi, N. F. et al. (Rostov-Don): Influence of the substances used for drying on the viability of the organisms in the dry live anti-plague vaccine. Pp. 274-277.

These four articles can be quoted by title only.

- 46) Pechnikova, I. V. and Chernova, E. A. (Stavropol): Influence of the temperature of storage on the period of potency of the dry live anti-plague vaccine. Pp. 277-279.

The conclusions reached by the authors were that

- "1. The percentage of live organisms in the dry anti-plague vaccine is directly related to the temperature of its storage.
2. Temperatures of 28°C and 37°C exert a destructive action on the vaccine.
3. A temperature of 20°C is less harmful and may be used for two months. Vaccine which had been stored from the day of its manufacture for one year at 40°C and then before use at 37°C, can be used for vaccination only during one day, if kept (before use) at 28°C, for three days, if kept at 20°C for one month, but the dosages must be increased in accordance with the percentage of live organisms, as prescribed by the instruction."

- 47) Derteva, I. I. et al. (Saratov): Influence of some factors on the viability of the live dry anti-plague vaccine in the process of storage. Pp. 280-283.

The author established that

- (a) A direct relationship exists between the initial viability rate of the vaccine and the viability rate after storage: the higher the former was, the larger the number of viable organisms after storage.
- (b) Generally speaking, the bacterial concentration of the vaccine exerted no influence on the viability rate after storage. Still, if the original concentration of the vaccine was high, some reduction of the viability percentage took place during storage.
- (c) A residual moisture of the vaccine within the range of 2.8%-3.7% exerted no influence on the viability rate of vaccine lots kept for one to two years at 5°C-8°C.

A higher residual moisture (3.8%-5%) exerted a slightly unfavorable influence on the viability rate, particularly after one year's storage at 5°C-8°C.



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- 48) Pechnikova, I. V. (Stavropol): Influence of the composition of the media used for drying on the viability of the organisms in the dry live anti-plague vaccine. Pp. 283-285.

The conclusions of the author were that

- "1. Media for drying containing ammonium molybdate - 0.4%, thiourea - 1% or the sodium salt of glutamic acid (1.5%), thiourea 0.5%, and peptone 0.05%, favor a long survival of the organisms in dry anti-plague vaccines stored at unfavorably high temperatures.
2. At a storage temperature of 37°C vaccines prepared on these media for drying, retain a minimal percentage of live organisms for 16 days, when stored at 28°C for 50 days and when kept at room temperature for 8-9 months."

- 49) Trifonova, A. A. and Terenoshkina, A. V. (Saratov): A nutrient medium prepared from blood coagula for the cultivation of P. pestis. Pp. 287-290.

The authors reported satisfactory results in the cultivation of P. pestis with a medium prepared as follows:

"Well formed coagula of horse blood were carefully washed, weighed, cut into pieces and put into a double volume of boiling tap water. Boiling was continued for one hour until the fluid became clear and the superficial scum was carefully removed. The boiled coagula were taken out and cut into small pieces and the fluid was brought to its original volume with tap water. The fragmented coagula together with the fluid (pH 8.0) were put into a flask. Then one added per liter of the digest 80-120 g of pancreas and 20-30 ml of chloroform. After half hour the pH was restored to its previous level with soda. The digest of the blood coagula was kept in the thermostat at 37°C for 4 days under occasional shaking, then filtered through calico and autoclaved for 30 minutes at 120°C. During this process the pH of the digest did not become lowered and sometimes even increased to 7.2-7.4."

In order to prepare broth and agar media,

"to one part of the digest were added 1-9 parts to tap water and 0.5% of NaCl. (If required) to this broth 2% agar was added. The agar media were clarified by the addition of 25 ml anti-plague serum per liter of the medium or by letting the impurities settle down. The broth and agar media were autoclaved for 40 minutes at 110°C. The final pH after the sterilization was 7.1-7.2."

- 50) Martens, L. A. (Saratov): Solid agar media prepared from acid hydrolysates of fish bone meal. Pp. 290-293.

The author found that agar media prepared with acid hydrolysates of the bone meal of fish were suitable for the laboratory diagnosis of plague and for vaccine manufacture and less expensive than meat infusion media. The publications by Martens (1962) and by Nikolaev and associates (1962), in which the preparation of the acid bone meal hydrolysates is described, were not available to the present reviewer.

- 51) Kondrashkova, T. V. (Saratov): Observations on the possibility of using the dry agar issued by the Dagestan Institute of Nutrient Media for the growth of P. pestis. Pp. 294-297.

The dry agar, prepared in the Dagestan Institute of Nutrient Media with fish hydrolysates, was found unsuitable for the cultivation of P. pestis.

- 52) Ivanov, N. R. et al. (Saratov): The immunological efficacy and the reactogenicity of combined vaccination against plague, brucellosis, tularemia and smallpox. Pp. 317-322.

Simultaneous vaccination against the four infections, enumerated in the title of this article, gave adequate results as long as the smallpox vaccine was administered at a separate place from the three other vaccines used at the same time.

- 53) Filippov, A. F. (Saratov): A study of the immunogenic properties of the anti-plague vaccines 1-17 and EV in regard to the date of their separation. Pp. 322-329.

The author of this article, the details of which must be studied in the original or in a translation, came to the conclusion that the live anti-plague vaccines remained

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potent for periods of one a half year to two years. In agreement with other workers he maintained that there existed no close parallelism between the immunogenicity of the different vaccine lots and the quantity of live organisms in them.

- 54) Korobkova, E. I. (Saratov): A consideration of the factors of the pathogenicity of plague. A survey. Pp. 330-344.

In view of the impossibility to deal briefly with this interesting survey, in which the publications of 13 Soviet authors and 39 foreign papers are quoted, a study of the original text or a translation, is recommended.

### Other infectious (quoted by title)

#### A. Anthrax

- 1) Larina, V. A. and Petrova, L. S. (Saratov): Isolation of active bacteriophages from anthrax bacilli isolated from the soil. Pp. 94-95.
- 2) Goncharova, N. S. and Zemtsova, I. N. (Saratov): Contributions to the problem of bacteriolysis of the anthrax bacilli. Pp. 95-100.
- 3) Akulova, M. F. (Rostov-Don): A modified agar medium for the differentiation of the anthrax bacillus. Pp. 254-257.
- 4) Akymovich, V. V. and Samoilova, L. V. (Saratov): The efficacy of the method of identification of the anthrax bacilli devised by Jensen and Kleemeyer (Zbl. Bakt. 1 Abt. Orig. 159 [1953] 8:494-499). The phenomenon of the "pearl necklace." Pp. 257-259.

#### B. Brucellosis

- 1) Igonina, N. B. (Saratov): White mice as an experimental model for the study of the efficacy of the treatment and prophylaxis of brucellosis. Pp. 37-41.
- 2) Uraleva, V. V. et al. (Rostov-Don): A new allergen for the diagnosis of brucellosis. Pp. 171-177.

C. Cholera

- 1) Uriupina, N. V. and Vasenin, A. S. (Saratov): Mutability of the cholera vibrio under the influence of streptomycin and bacteriophage in vivo. Pp. 68-69.
- 2) Naumshina, M. S. (Saratov): Comparative study of the fundamental properties of cholera cultures kept in the dry state and on artificial nutrient media. Pp. 69-71.
- 3) Somova, A. G. (Rostov-Don): Sensitivity of the population of the V. cholerae in various stages of development to some environmental factors. Pp. 71-77.
- 4) Tikhomirova, M. M. (Ashkhabad): The diffusion factor in cholera and water vibrios studied in vitro and in vivo. Pp. 78-83.
- 5) Voronezhskaia, L. G. et al. (Rostov-Don): Observations on the increase of the virulence of cholera vibrios by various methods. Pp. 83-86.
- 6) Vereninova, N. K. et al. (Saratov): Influence of tissue extracts on the biological properties of the cholera vibrio. Pp. 86-90.
- 7) Naumshina, M. S. (Saratov): Saccharose-negative variants of the cholera vibrio. Pp. 91-93.
- 8) Petrova, L. S. (Saratov): The quantitative composition of the antigens of V. cholerae according to the results of specific precipitation in agar. Pp. 162-166.
- 9) Petrova, L. S. (Saratov): The antigenic composition and the immunizing activity of cholera vaccines and their separate fractions. Pp. 166-170.
- 10) Vereninova, N. K. et al. (Saratov): Treatment of cholera infection with some antibiotics in guinea-pig experiments. Pp. 205-209.
- 11) Uriupina, N. V. (Saratov): Action of streptomycin in experimental cholera. Pp. 209-212.
- 12) Adamov, A. K. et al. (Saratov): Use of alizarin suspensions of agglutinins for the rapid observation of cholera vibrios in feces and water. Pp. 242-246.

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- 13) Tumanskii, V. M. et al. (Saratov): Accelerated observation of cholera vibrios with the aid of bacteriophages introduced into the material under test at the time of its cultivation. Pp. 246-248.
- 14) Vessel, M. M. (Saratov): Observations on the biological method of control of cholera bacteriophage preparations. Pp. 297-302.
- 15) Ostroumova, N. M. (Saratov): The lytic activity of the cholera bacteriophage in relation to the character of the interaction of its particles with the cholera vibrios. Pp. 303-306.
- 16) Ostroumova, N. M. (Saratov): Influence of repeated infections on the reproduction of the cholera bacteriophage. Pp. 306-311.
- 17) Bystryi, N. F. et al. (Rostov-Don): The degree of the penetration of the cholera bacteriophage into the gall bladder in relation to the method of its introduction into the body. Pp. 311-317.

#### D. Tularemia

- 1) Bitepazh, V. A. and Iginina, A. F. (Saratov): An instance of isolation of the tularemia bacillus from the human blood during a relapse of the disease. Pp. 100-101.
- 2) Khakhina, Z. D. et al. (Rostov-Don): Influence of ionizing radiation on the course of tularemia in white mice. Pp. 212-220.
- 3) Zemtsova, I. N. and Goncharova, N. S. (Saratov): The precipitation reaction in standard agar media as a method for the observation of the tularemia bacillus in the organs of test laboratory animals. Pp. 248-251.
- 4) Zykin, L. F. (Saratov): Use of highly effective media for the cultivation of the tularemia bacillus. Pp. 251-253.

#### E. Pneumonia

- 1) S. O. F. and Kashirina, V. P. (Saratov): Classification of pneumonia in small animals. Pp. 198-204.

200. List of noteworthy articles in the book "Prirodnaia ochagovost' boleznei i voprosy parazitologii (Naturally focal diseases and problems of parasitology). Proceedings of the 5th conference on naturally focal diseases and problems of parasitology of the Central-Asian Republics and the Kazakhstan, 24-28 September 1962, Vypusk 4, Frunze (1964).
- 1) Petrisheva, P. A. (Gamaleia IEM, AMS, USSR): Scientific foundations of the prophylaxis of naturally focal diseases in the course of the cultivation of virgin territories. Pp. 21-23.
  - 2) Rapoport, L. P. and Lavrent'ev, A. F. (Kirghiz Anti-Plague Station): Consideration of the ecological factors of the natural focality of anthro-po-zoonoses in Kirghizia. Pp. 23-26.
  - 3) Musaev, M. A. (Zoological Institute of the Azerbaidzhan AS): Results and tasks of investigations concerning the problem of naturally focal diseases in Azerbaidzhan. Pp. 27-28.
  - 4) Proreshnaia, T. L. (Department of Epidemiology of the Kirghiz MI): Characterization of the Rickettsia burneti strains isolated in Kirghizia. Pp. 29-31.
  - 5) Proreshnaia, T. L. and Malyshev, B. F. (Departments of Epidemiology and Morbid Anatomy of the Kirghiz MI): Pathological changes in the organs of guinea-pigs infected with R. burneti strains isolated in Kirghizia. Pp. 31-32.
  - 6) Amanzhulov, S. A. et al. (Institute of Regional Pathology of the Kazakhstan AS): Results of a study of Q-rickettsiosis in domestic (agricultural) animals in the Kazakhstan. Pp. 32-34.
  - 7) Makhmetov, M. M. and Tagil'tsev, A. A. (Kazakh IEMH): Observations on the infectibility of ixodes ticks with Q-fever in the virgin territories of the Kokchetav Oblast. Pp. 34-35.
  - 8) Sukhodoeva, G. S. (Institute of Regional Pathology of the Kazakhstan AS): The natural Q-fever focus in the Alma-Ata Oblast. Pp. 35-36.
  - 9) Pchelkina, A. A. (Gamaleia IEM, AMS, USSR): Experimental infection of steppe lemmings with Q-fever. Pp. 36-37.

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- 10) Imanov, E. D. et al. (Institute of Zoology and Parasitology of the AS of the Kirghiz SSR and RSFSR): Materials to the study of Q-fever in some raions of Kirghizia. Pp. 37-38.
- 11) Zhmaeva, Z. M. and Pchelkina, A. A. (Gamaleia IEM, AMS, USSR): Ixodes ticks - the carriers of the rickettsiae of Q-fever and Asian tick-borne typhus in North Kazakhstan. Pp. 39-41.
- 12) Pan'kina, M. V. and Karmegiser, N. N. (Sanitary-Epidemiological Station of the Chirchik Oblast): An outbreak of contact infections with Central-Asian fever in the South-Kazakhstan Krai. Pp. 41-42.
- 13) Dmitrienko, N. K. and Prichod'ko, E. T. (Sanitary-Epidemiological Station of the Kazakh Republic): Foci of tick-borne encephalitis in the Kazakhstan. Pp. 42-43.
- 14) Tarasevich, I. V. (From the Gamaleia IEM, AMS, USSR): Problems of the fight with naturally focal rickettsioses. Pp. 44-45.
- 15) Onufriev, V. P. and Ikovataia, G. M. (Tadzhik SR Veterinary Institute): Observations on the role of ticks of the family Ixodidae in the transmission of the foot-and-mouth disease. Pp. 45-47.
- 16) Lukin, A. M. (Novosibirsk SR Veterinary Station): Ixodes ticks as stable reservoirs and vectors of foot-and-mouth disease. Pp. 47-49.
- 17) Gluchov, V. F. (Stavropol Agricultural Institute): Role of the Argasid ticks in the spread of chicken cholera. Pp. 49-50.
- 18) Volkova, A. A. and Galiev, R. S. (Institute of Zoology and Parasitology of the Kirghiz AS): A study of the epizootiology of necrobacillosis as a disease with a possible natural focality. Pp. 50-52.
- 19) Galiev, R. S. et al. (Institute of Zoology and Parasitology of the Kirghiz AS): Coprophage beetles as possible reservoirs of necrobacillosis infection in nature. Pp. 52-54.
- 20) Iskakov, G. R. and Zhalobovskii, I. L. (Semipalatinsk Zootechnical and Veterinary Institute): Contributions to the

problem of the focality and epizooticology of listeriosis of the agricultural animals in the Semipalatinsk Oblast. Pp. 54-55.

- 21) Galiev, M. K. and Mamedova, D. G. (From the Azerbaidzhan SR Veterinary Institute): A contribution to the problem of the natural focality of listeriosis of agricultural animals. Pp. 55-57.
- 22) Abushev, F. A. and Musaev, M. A. (Zoological Institute of the Azerbaidzhan AS and Dzhul'finsk Branch of the Azerbaidzhan Anti-Plague Station): Experimental listeriosis in gerbils and some other rodent species. Pp. 57-58.
- 23) Sharapkov, N. IA. and Serzhanov, O. S. (Nukus Anti-Plague Station): Isolation of Pasteurella multocida cultures from the tick Hyalomma detritum and Nesokia indica in the Kara-Kalpak ASSR. Pp. 58-60.
- 24) Davydova, M. S. and Gritsenko, I. N. (Biological Institute of the Siberian Branch of the AS, USSR): Observations on the variability of the relations between ticks and the causative organisms of natural focal diseases. Pp. 60-62.
- 25) Rementsova, M. M. et al. (Institute of Regional Pathology of the Kazakh AS): Brucellosis in commercially hunted animals. Pp. 62-63.
- 26) Rybalko, S. I. and Rementsova, M. M. (Insitute of Regional Pathology of the Kazakh AS): Materials to the investigation of Lepus tolai and red foxes for the presence of brucellosis in the region south of the Balkhash Lake. Pp. 63-64.
- 27) Volkova, A. A. et al. (Laboratories of Microbiology and Arachnology of the Institute of Zoology and Parasitology of the Kirghiz AS): An experimental study of the role of ixodes ticks in the preservation and transmission of brucelleae. Pp: 65-66.
- 28) Timofeev, A. F. (Institute of Zoology and Parasitology of the Kirghiz AS): Influence of the body of ticks belonging to the genera Dermacentor and Haemaphysalis on brucelleae of the species Abortus bovis and Melitensis. Pp. 66-69.
- 29) Khrushcheva, N. F. (Institute of Regional Pathology of the Kazakh AS): Transmission of brucelleae to wild and agricultural animals by ticks of the genus Dermacentor. Pp. 69-70.



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- 30) Rementsova, M. M. et al. (Institute of Regional Pathology of the Kazakh AS): Gamasides, lice and fleas as vectors of brucellosis. Pp. 70-72.
- 31) Korol', A. G. (Sanitary-Epidemiological Station of the Kherson Oblast): A new variety of brucellae isolated from mouse-like steppe rodents. Pp. 72-73.
- 32) Ershova, L. S. (Central-Asian SR Anti-Plague Institute): A possible role of the tick Ornithodoros lahorensis in the transmission of Francisella tularensis to sheep.\* Pp. 74-75.
- 33) Aikimbaev, M. A. et al. (Central-Asian SR Anti-Plague Institute, Alma-Ata): The importance of the tick Dermacentor daghestanicus as a reservoir and vector of tularemia. Report I. Pp. 75-76.
- 34) Aikimbaev, M. A. and Roshchin, V. V. (Central-Asian SR Anti-Plague Institute): A contribution to the problem of the bacteriological diagnosis of tularemia.\* Pp. 76-77.
- 35) Pakizh, V. I. (Sanitary-Epidemiological Station of the Pavlodar Oblast): Observations on the changed conditions of the existence of the rodents in the natural tularemia focus in the floodland of the middle course of the Irtysh as a result of the construction of the Bukhtarminsk Hydro-Electrical Center. Pp. 78-79.
- 36) Lavrovskii, A. A. and Semenov, N. M. (All-Soviet SR Institute "Mikrob", Saratov): The rodents of the Berov Hills in Northern Pre-Caspia and their epizootiological importance. Pp. 79-80.
- 37) Lavrent'ev, A. F. et al. (Kirghiz Anti-Plague Station): Remarks on the methodology of the sanitation of the Central-Asian mountain plague focus.\* Pp. 80-82.
- 38) Kizilov, V. A. and Lavrent'ev, A. F. (Kirghiz Anti-Plague Station): Some peculiarities of the plague epizootic among the red marmots in 1961.\* Pp. 82-83.
- 39) Popov, V. K. et al. (Kirghiz Anti-Plague Station): Influence of the weather conditions on the ecological and physiological state of the marmots and the course of the epizootics in the Central-Asian mountain plague focus.\* Pp. 83-85.
- 40) Golkovskii, G. M. et al. (Turkmenian Anti-Plague Station): Experimental study of the transmission of P. pestis by fleas.\* Pp. 85-86.

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- 41) Naiden, P. E. and Diatlov, A. I. (Uzbekistan Anti-Plague Station): Prospects of sanitation of the plague epizootic focus in the Kyzyl-Kums.\* Pp. 86-87.
- 42) Lisitsyn, A. A. (Central-Asian SR Anti-Plague Institute): Epizootiological importance of rodents in the sandy part of the Volga-Ural natural plague focus.\* Pp. 88-89.
- 43) Lavrent'ev, A. F. and Poluliakh, P. A. (Kirghiz Anti-Plague Station): Observations on the susceptibility and infectious sensitivity of the narrow-skulled voles to plague.\* Pp. 89-90.
- 44) Nikitin, V. P. and Moralin, G. P. (Turkmenian Anti-Plague Station): Interspecies relations of the large gerbils and other epizootiological significance. Pp. 90-92.
- 45) Berendiaev, S. A. et al. (Kirghiz Anti-Plague Station): The importance of the marmot burrows in the epizootiological of plague.\* Pp. 92-93.
- 46) Berendiaeva, E. L. and Rapoport, L. P. (Kirghiz Anti-Plague Station, Frunze): Observations of the role of the parasitological factor in the spread of plague in Kirghizia.\* Pp. 93-94.
- 47) Panskii, E. E. et al. (Turkmenian Anti-Plague Station): Considerations to the problem of the variability of P. pestis under natural conditions. Pp. 95-96.
- 48) Zhernovov, I. V. et al. (Turkmenian Anti-Plague Station): A plague epizootic among the rodents in the Sarykamysh sandy areas.\* Pp. 96-97.
- 49) Poluliakh, P. A. and Grebeniuk, R. V. (Frunze Anti-Plague Station and Institute of Zoology and Parasitology of the Kirghiz AS): A study of the ticks of the genus Dermacentor as vectors of P. pestis under experimental conditions.\* Pp. 98-99.
- 50) Kondrashkina, K. I. et al. (All-Soviet SR Institute "Mikrob", Saratov): Ability of the plague bacillus to multiply in the tick Rhipicephalus schulzei Ol. Pp. 99-100.
- 51) Akopian, M. M. et al. (Nukus Anti-Plague Station): Mass mortality of the gerbils and their ectoparasites in the Kyzyl-Kums and its causes.\* Pp. 100-101.
- 52) Bibikova, V. A. et al. (Central-Asian SR Anti-Plague Institute, Alma-Ata): Determination of the pH in the gastrointestinal tract of fleas. Preliminary communication. Pp. 229-231.

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- 53) Kondrashkina, K. I. and Dudnikova, A. F. (All-Soviet SR Institute "Mikrob", Saratov): Comparative analysis of the intensity of the oxygen consumption by various species of fleas. Pp. 231-232.
- 54) Sviridov, G. G. et al. (Central-Asian SR Anti-Plague Institute): Use of radio-active isotopes in the study of some problems of the ecology of fleas. Report I. Alimentary relations of the fleas of the large gerbils with their host under natural conditions. Pp. 232-233.
- 55) Bibikova, V. A. et al. (Central-Asian SR Anti-Plague Institute): Remarks on the methodology of the study of the population density of the fleas of the large gerbils in the natural plague foci. Pp. 234-235.
- 56) Akopian, M. M. (Nukus Anti-Plague Station): Length of life of the fleas in sealed colonies of the large gerbils. Pp. 235-236.
- 57) Bibikova, V. A. et al. (Central-Asian SR Anti-Plague Institute): Fleas of the large gerbils in the region south of the Balkhash Lake. Pp. 236-238.
- 58) Gerasimova, N. G. (Gur'ev Anti-Plague Station): A contribution to the problem of the migration of the fleas of the midday and tamarisk gerbils under the conditions of the Volga-Ural sandy areas. Page 238.
- 59) Kolpakova, S. A. et al. (All-Soviet SR Institute "Mikrob", Saratov): Seasonal peculiarities of the fauna and ecology of the fleas of beasts of prey and mammals. Pp. 239-240.
- 60) Afanas'eva, O. V. and Bgytova, S. I. (Central-Asian SR Anti-Plague Institute): Development of Xenopsylla gerbilli minax during constant contact of the females with the hosts. Pp. 240-241.
- 61) Mokrousov, N. IA. and Morozova, I. V. (Central-Asian SR Anti-Plague Institute): Observations on the fauna of fleas of the wild mammals in the Tau-Kums. Pp. 241-242.
- 62) Korotkova, V. S. and Semenova, N. I. (Kirghiz Anti-Plague Station): Materials concerning the ectoparasite fauna of the south of Kirghizia. Pp. 242-243.
- 63) Asenov, G. A. (Nukus Anti-Plague Station): Some peculiarities of the distribution of the sites of rodents and their fleas at the junction of deserts and oases. Pp. 243-244.

- 64) Berendiaeva, E. L. and Kul'kova, N. A., Materials concerning the ecology of the marmot fleas during winter. Pp. 245-246.
- 65) Netskii, G. I. et al. (Omsk SR Institute of Naturally Focal Infections of MH, RSFSR): Experience of forecasting the frequency and virus carriage of the tick Dermacentor pictus in the forest-steppe foci of Omsk hemorrhagic fever. Pp. 252-253.
- 66) Abusalimov, N. S. (Zoological Institute of the Azerbaidzhan AS): Argasid ticks and diseases transmitted by them to animals, birds and man in the Azerbaidzhan SSR. Pp. 261-263.
- 67) Vashkov, V. I. (Central SR Disinfection Institute): Presently available preparations for the fight against arthropods of medical importance. Pp. 283-289.
- 68) Fedder, M. L. (Central SR Disinfection Institute): The present state of the problem of repellents against insects and ticks. Pp. 290-291.
- 69) Nikolskii, S. N. (Stavropol Agricultural Institute): Use of acaricides for the fight against pasture and scabbed ticks on animals. Pp. 291-294.
- 70) Kerbabaev, E. B. and Molchek, G. B. (Central SR Disinfection Institute, Moscow): Acaricidal action of vafatoks and tri-chlormetafos-tri. Page 300.
- 71) Kalmykov, P. G. (Order of Lenin S. M. Kirov Military-Medical Academy): Methodology of the study of the mechanism of action of insecticides with the use of labelled atoms. Pp. 301-302.
- 72) Uzakov, U. IA. (All-Soviet SR Institute of Veterinary Sanitation): Experience of using chlorofos in the fight against ixodes ticks. Pp. 304-306.
- 73) Gusev, V. F. et al. (Leningrad SR Veterinary Institute): Acaricidal action of karbofos on the tick Ixodes ricinus. Pp. 307-309.
- 74) Kerbabaev, E. B. et al. (Central SR Disinfection Institute): Burrows in the desert, their inhabitants and the fight against these. Pp. 309-310.
- 75) Sebast'ianov, A. Z. (Stavropol Agricultural Institute): Contribution to the problem of using the gamma-isomer of hexachlorane for the fight against pasture and scabbed ticks. Pp. 310-311.

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(The articles marked with an asterisk are reviewed below.)

#### Reviews

- (a) Lavrent'ev, A. F. et al. (Loc. cit., pp. 80-82): Discussing the campaigns against the marmots in the Central-Asian mountain focus, the authors stressed the efficacy of repeated operations by detachments provided with laboratory facilities. In this way it was possible to locate the burrows in which infected animals had been found, and to treat such burrows with methyl bromide. Work conducted in this manner in some parts of the focus for five years had given satisfactory results, leading in some of the treated localities even to a disappearance of the infection.
- (b) Kizilov and Lavrent'ev (Loc. cit., pp. 82-83): The authors stated that during the last 27 years the presence of plague in the red marmots (Marmota caudata) in the eastern part of the Alai mountains had been detected only five times (in 1948, 1951-52, 1957 and 1961). During the last-mentioned year an examination of 704 marmots and 7,824 ectoparasites led to the isolation of 14 plague cultures - 6 from marmots, 8 from fleas and lice. Though the population density of the marmots in that year was low, the spread of the infection among them was facilitated by the scarcity of their food due to a period of drought which led to considerable migrations of the usually rather sedentary animals. The authors expressed the fear that these migrations might have led to the creation of new elementary foci of the infection.
- (c) Popov et al. (Loc. cit., pp. 83-85): In agreement with the above quoted observations, the authors of the present article came to the conclusion that "dryness within the Central-Asian mountain plague focus is a factor activating the epizootic process."
- (d) Golkovskii et al. (Loc. cit., pp. 85-86): Working with the avirulent EV strain the authors were capable of producing a temporary blockage in fleas of the subspecies Xenopsylla gerbilli gerbilli and to convey the infection through the bite of these fleas to some white mice. The bites of fleas infected with the EV strain protected guinea-pigs and white mice against challenge with a virulent plague strain.
- (e) Naiden and Diatlov (Loc. cit., pp. 86-87): As the authors of this note stated, plague continues to be entrenched in the

sandy areas of the Kyzyl-Kums. During the period from 1948 to 1962 a total of 1,691 plague cultures was isolated from rodents and their ectoparasites. Though this material was collected in 340 different localities, the authors maintained that, in order to deal drastically with the plague situation in the Kyzyl-Kums, it would be sufficient to wage a perennial war against the rodents in an area of 1.5 million hectares where the infection appeared to be entrenched.

- (f) Lisitsyn (Loc. cit., pp. 88-89): The author postulated that, in the sandy areas of the Volga-Ural plague focus, the midday gerbils were the main reservoir of the infection while the tamarisk gerbils furnished the fuel for its spread. The domestic mice and voles and their fleas, though generally of little or even no importance, were apt to play an important role in the transmission of plague to man, especially at times when they were numerous.
- (g) Lavrent'ev and Poluliakh (Loc. cit., pp. 89-90): Though the marmots (M. baibacina) function almost exclusively as the reservoir of plague in the Tian-Shan plague focus, occasionally other rodents have been found involved. Thus the authors could prove the presence of the infection in narrow-skulled voles (Microtus gregalis) as well as in fleas of the species Neopsylla meridiana, Rhadinopsylla li murium and Amphipsylla asiatica collected from one of these rodents which had spontaneously succumbed to plague. It was likewise found that the narrow-skulled voles were experimentally susceptible to plague, which was apt to cause an acute infectious process in them. Out of 5 guinea-pigs on which infected fleas of the above mentioned species and Nosopsyllus penicilliger had been exposed, one succumbed to plague.
- (h) Berendiaev et al. (Loc. cit., pp. 92-93): In the concluding paragraphs of their note the authors stated that

"The marmot burrows function as long existing elementary foci of plague infection. They play an important role in the maintenance of the epizootics in the Central Tian-Shan. Still, the different types of the burrows are of different epizootiological importance, depending upon the number of fleas in the nests and also upon the seasons and the length of time which they are inhabited by the animals.

The permanent burrows are used by the marmots for a prolonged time. Apparently these burrows are of fundamental importance for the perpetuation and spread of plague.

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An important role in the perpetuation of the infection during the inter-epizootic periods is played apparently also by the winter burrows since the flea indices in them are high and the microclimatic conditions are favorable for the hibernation of the fleas.

Contact of the marmots with infected fleas and the transmission of P. pestis from rodent to rodent take place mainly in the summer holes. The possibility of preservation of the organisms in these during winter is somewhat limited since a part of the fleas succumbs at that time.

The burrows serving as refuges are used by the marmots for brief periods and fleas are practically absent in them. Therefore these burrows, though numerous, are of no epizootiological importance."

- (i) Berendiaeva and Rapoport (Loc. cit., pp. 93-94): Discussing the role of the fleas in the perpetuation of plague in Kirghizia, the authors ascribed main importance to the nest fleas Rhadinopsylla li ventricosa, which is capable of surviving in burrows without hosts and remaining plague-infected for more than one year.
- (j) Punskii et al. (Loc. cit., pp. 95-96): Examining four plague strains isolated in 1961 from large gerbils in a Turkmenian raion, the author found the organisms under test fairly virulent for white mice and more virulent still for domestic mice, but practically avirulent for guinea-pigs. Afghan voles proved resistant to the strains, animals killed 40 days after infection showed no morbid changes in their organs. Still, from about 20% of these animals plague bacilli could be isolated from the internal organs and in some instances positive cultures could also be obtained from their blood. The authors postulated, therefore, that this species of rodents played an important role in the perpetuation of plague in Turkmenia.
- (k) Zhernovov et al. (Loc. cit., pp. 96-97): This note gives a description of an epizootic taking place in 1960-1961 in Turkmenia ultimately involving an area of one million hectares. Large gerbils and their fleas were mainly involved. Among the latter the presence of plague was proved in the following species: Coptopsylla olgae, C. bairamaliensis, C. lamellifer rostrata, Xenopsylla hirtipes, X. gerbilli caspica, Nosopsyllus tersus, Stenoponia vlasovi.

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- l) Poluliakh and Grebeniuk (Loc. cit., pp. 98-99): Though the authors obtained some positive results when trying to infect D. pavlovskiy and D. marginatus with plague and succeeded in one instance to transmit the disease to a guinea-pig upon which infected ticks of these species had been exposed, they considered the evidence that ticks of the genus Dermacentor might play a role in the plague epizootics as still incomplete.
- m) Akopian, M. M. et al. (Loc. cit., pp. 100-101): The high mortality among the gerbils observed in the Kyzyl-Kums in 1960 and 1961 was causally connected with a period of draught. In the opinion of the authors it was the dryness of the vegetation rather than the lack of food which was responsible for the death of the animals.
- n) Ershova (Loc. cit., pp. 74-75): The author obtained in three out of six instances positive results when exposing tularemia-infected ticks of the species Ornithodoros lahorensis on healthy sheep.
- o) Aikimbaev, M. A. et al. (Loc. cit., pp. 75-76): As found by the authors, ticks of the species D. daghestanicus which had once ingested tularemia bacilli, remained infected for periods of up to 390 days and passed the infection during the process of metamorphosis from one stage of development to the following.
- p) Aikimbaev and Roshchin (Loc. cit., pp. 76-77): Working with white mice experimentally infected with tularemia, the authors found that it was as easy to cultivate the causative organisms from the brain as from the spleen of the animals. They recommended therefore to obtain under chloroform anaesthesia material for cultivation from the brain of animals which had been infected with tularemia-suspect material three days earlier. The new method gave good results in work with contaminated materials.

201. Kanchukh, A. A. et al., Development of a resistance to the plague toxin in white mice after its repeated administration. Biull. eksper. biol. i medits. 58 (1964) 12: 66-70.  
(From the Rostov-on-Don SR Anti-Plague Institute.)

Concluding their article, the authors stated that

"The data obtained show that repeated administrations of the plague toxin in its active form produce in white mice a resistance to large doses of the toxin



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in the range of some hundreds of LD<sub>50</sub>. This resistance is much higher than that obtained by Aji and Rust (Ann. N. Y. Acad. Sci. 88 [1960]: 1152) when immunizing mice with formalized toxin....

The absence of a parallelism between the resistance to the toxin and the titer of the antibodies against it, and also the demonstration of the instability of the toxin-antitoxin complex show that the mechanism of the development of the toxin resistance cannot consist of a neutralization of the toxin by the antibodies.

Attention is called to the fact that the vascular disturbances and the degenerative changes observed in the parenchymatous organs...develop not only in the toxin-susceptible mice but also in animals showing a high degree of toxin resistance....

The experimentally observe tolerance of white mice for large doses of the plague toxin apparently does not stand in relation to the phenomena of immunity."

203. Korenberg, E. I. et al., Peculiarities of the immunization of grouse birds in a natural focus of tick-borne encephalitis. Med. parazitol. (1964) 6:711-717.  
(From the Department of Naturally Focal Diseases of the Gamaleia IEM, AMS, USSR.)

The authors of this article, the details of which must be studied in the original or in a translation, found that hemagglutination inhibition tests and virus neutralization tests were suitable for an evaluation of the frequency of contact of grouse with the tick-borne encephalitis virus.

204. Kudriashova, N. I. and Tarasevich, I. V., Red mites in a natural focus of Tsutsugamushi fever in the southern part of the Primor'e. Med. parazitol. (1964) 6:718-721. (From the Gamaleia IEM, AMS, USSR.)

Working in the autumn of 1963 in the Khazan Raion of the Primorsk Krai, the author found 11 species of trombicula

mites on rodents and shrews. Animal experiments with 41 pools made from about 8,000 specimens of the mites gave a positive result for R. tsutsugamushi in 22 instances. Leptotrombidium pallida and L. pavlovskyi appeared to be of greatest epizootiological and epidemiological importance.

205. Bibikova, V. A. et al., Contributions to the methodology of the laboratory feeding of fleas for studies on their role in the preservation and transmission of the causative organisms of infectious diseases.  
Med. parazitol. 33 (1964) 6:739-740.  
(From the Central-Asian SR Anti-Plague Institute.)

The methods recommended by the authors for laboratory work with fleas must be studied in the original or in a translation of their note.

206. List of noteworthy articles quoted in a reference list published in the journal Med. parazitol. 33 (1964): 747-751.

- 1) Abramova, N. P., Kidney affections in two-wave virus meningo-encephalitis. Sbornik trudov Izhevsk. med. inst. 20 (1964) 1:111-114.
- 2) Gerasimova, E. N., Comparative evaluation of the action of some repellents on the nymph stage of the forest tick.  
Ibidem, 74-76.
- 3) Ermakova, L. R. and Kazakova, V. L., Peculiarities of the course of tick-borne encephalitis in children.  
Ibidem, 128-133.
- 4) Zorina, Z. M., Disturbance of the secretory and excretory functions of the stomach in patients with two-wave virus meningo-encephalitis. Ibidem, 104-110.
- 5) Il'enko, V. I. et al., A contribution to the serological characterization of two-wave meningo-encephalitis in Udmurt ASSR. Ibidem, 15-24.
- 6) Nikolaevskaia, T. I., Characterization of the state of the cardiovascular system in two-wave meningo-encephalitis.  
Ibidem, 83-95.
- 7) Smirnov, A. V. et al., Tick-borne encephalitis in the Udmurt ASSR and measures for the fight against it. Ibidem, 41-49.

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- 8) Chukavina, A. I., The blood picture in two-wave virus meningo-encephalitis. Ibidem, 121-127.
- 9) Chukavina, A. I., Clinical characterization of two-wave virus encephalitis in the Udmurt ASSR. Ibidem, 77-82.
- 10) Chukavina, A. I., A contribution to the problem of the state of the antitoxic function of the liver and the prothrombin formation in patients with two-wave virus meningo-encephalitis. Ibidem, 115-120.
- 11) Andreiko, O. F., Observations on the parasitic fauna of voles (Microtinae) of Moldavia and their importance in the distribution of human and animal diseases. In: Paraziti zhivotnykh Moldavii i voprosy kraevoi parazitologii (Animal parasites of Moldavia and problems of regional parasitology), Kishenev (1963): 16-34.
- 12) Andreiko, O. F. and Pinchuk, L. M., The ectoparasites of some mouse-like rodents and their epidemiological importance. Ibidem, 57-68.
- 13) Boiko, V. A., Natural foci of tick-borne encephalitis in the forest-steppe zone of Tatar. Thesis, Kazan' (1964).
- 14) Vorob'eva, M. S. and Levkovich, E. N., Observations on the susceptibility of cold-blooded animals to the tick-borne encephalitis virus. Zool. zh. 43 (1964) 7:1084-1087.
- 15) Naumov, R. L., Birds in the tick-borne encephalitis foci of the Kraşnoiarsk Krai. Thesis, Moscow (1964).
- 16) Alatyrtseva, I. E. and Cheranova, T. I., Naturally focal diseases in the Tatar ASSR and organization of the fight against them. Kazan. med. zh. (1964) 3: 3-8.
- 17) Nassonov, L. S., Experiences in the organization of zoo-parasitological and epizootiological investigations under field conditions. Voennoe-med. zh. (1964) 7: 82.
- 18) Balaeva, N. M. and Levina, E. N., Detection of R. prowazeki by the method of luminescent antibodies in experimental animals and insects. Izv. Akad. Nauk SSSR, Seriya biol. (1964) 3:433-438.
- 19) Violovich, N. A., A new flea species Paradoxopsyllus scaloni Sp. N. in the South-Eastern Altai. Zool. zh. 43 (1964) 7:1082-1084.

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- 20) Rostigaev, B. A. and Solov'eva, A. V., A new fleas species in Grusinia. Ibidem, 1241-1243.
- 21) Sil'verstov, V. B. and Netsengevich, M. R., Importation of rats and mice by airplanes into the Soviet Airports and possibilities of their contact with the local rodent populations. Ibidem, 1056-1061.
207. Madzhidov, V. M., The clinical characteristics of brucellosis in vaccinated persons. Sov. medits. (1964) 12: 80-83. (From the Department of Infectious Diseases of the Sanitary-Hygienic and Pediatric Faculties of the Tashkent MI.)
- The conclusions of the author were that
- "1. Brucellosis attacks among vaccinated persons occur mostly during the period of the formation of the post-vaccinal immunity and after the immunity begins to disappear.
2. Brucellosis in the vaccinated is manifested in most instances of the appearance of local affections, only in comparatively rare instances by signs of an acute sepsis at the onset of the disease. Thus among the vaccinated a primarily chronic form of brucellosis is prevalent.
3. The course of all clinical forms of brucellosis is milder and shorter in the vaccinated than among the nonimmunized patients.
4. In the majority of the vaccinated the primarily chronic form of brucellosis runs its course in an attenuated clinical form."
208. Chernaia, T. T. et al., The clinical course of ornithosis. Vrachebnoe delo (1965) 1:104-107. (From the Department of Infectious Diseases of the Kiev MI.)

The authors recorded the clinical observations made in seven ornithosis patients, five of whom belonged to one family. The course of the disease was severe in six of the sufferers with serious affections of the lungs. In the familial outbreak as well as in the case of one of the other two patients pigeons were the source of the infection.

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The authors stress the necessity of considering the presence of ornithosis in all instances of atypical and recurring pneumonic process.

209. Somova, A. G., Phage-resistant mutants of the cholera vibrio and isolation of latent phages from them.  
Biull. eksper. biol. i medits. 59 (1964) 1: 75-78.

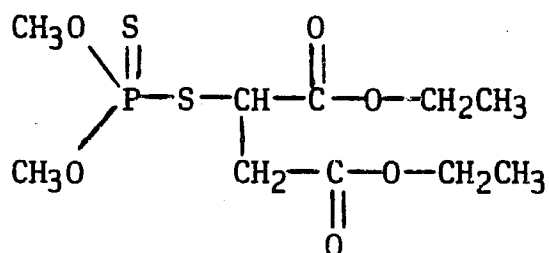
Quoted by title.

Cited from Russian Drug Index (National Library of Medicine)  
U. S. Department of Health, Education and Welfare, 1961.

**CARBOPHOS (Karbofos)**

Synonyms: Malathion, Malathon, TM-4049

S-(1,2-dicarbethoxyethyl)-0,0-dimethyl-dithiophosphate

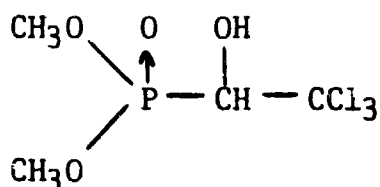


Shadurskii, K. S., Farmakologiya kak osnova terapii. Report I. Farmakologiya kholinergicheskikh protsessov, 1959, p. 82.  
Merck Index, 1960, p. 631.

## CHLOROPHOS (Khlorofos)

Synonyms: Bayer L 13/59, DETF, Dipterex

0,0-dimethyl-1-hydroxy-2,2,2-trichloro-ethylphosphonate

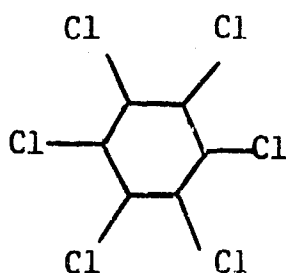


Vashkov, V. I. and Nekrasova, T. S. (Bactericidal properties of Chlorophos). Zh. mikrobiol. 1959, 30: No. 6, p. 48-52. Merck Index, p. 385.

**HEXACHLORANE (Geksakhloran)**

Synonyms: Aparasin, Aphtiria, Ben-Hex. Benzene Hexachloride BHC, Gamma Benzene Hexachloride, Gammesane, Geksakhlorotsiklogexsan, Geksan, GKHTSG, Hexachlorocyclohexane, Jacutin, Kwell, Lindane, Lorexane, Streunex, Tri-6

1,2,3,4,5,6-hexachlorocyclohexane

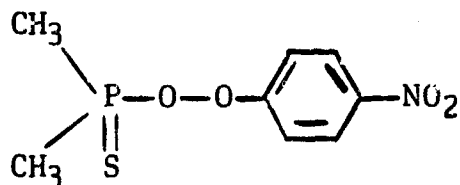


Burkatskaia, E. N. (Toxicology of Hexachlorocyclohexane isomers). Farmakol. toksikol. 1959, 22: No. 3, p. 272. Merck Index, 1960, p. 610.

**METAPHOS (Metafos)**

Synonyms: Metacid, Methylparathion, Wofatox

0,0-dimethyl-0-(4-nitrophenyl)-thiophosphate



Agricultural insecto-fungicide

Brakhnova, I. T. (Experimental data on the toxicology of Metaphos) Farmakol. toksikol. 1957, 20: No. 3, pp. 78-81. Merck Index, 1960, p. 659.

ATMOSPHERIC POLLUTION BY OZONE:  
ITS EFFECTS AND VARIABILITY

by

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B. S., Tufts University  
(1959)

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May, 1965

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Chairman, Department Committee on Graduate Students

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